HOME

Konica

SERVICE MANUAL

Model
FK-101

FEBRUARY 2000

CSM-FK101

KONICA BUSINESS TECHNOLOGIES, INC.

HOME

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FK-101

SERVICE MANUAL

FEBRUARY 2000

Used on Konica Model 7020

HOME

IMPORTANT NOTICE

Because of the possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Business Technologies strongly recommends that all servicing be performed by Konica-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Business Technologies, Inc., makes no representations or warranties, either expressed or implied, that the information contained in this service manual is complete or accurate. It is understood that the user of this manual must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service manual is intended.

Corporate Publications Department

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SAFETY PRECAUTIONS

Installation Environment

Safety considerations usually are directed toward machine design and the possibility of human error. In addition, the environment in which a machine is operated must not be overlooked as a potential safety hazard.

Most electrical equipment is safe when installed in a normal environment. However, if the environment is different from what most people consider to be normal, it is conceivable that the combination of the machine and the room air could present a hazardous combination. This is because heat (such as from fusing units) and electrical arcs (which can occur inside switches) have the ability to ignite flammable substances, including air.

When installing a machine, check to see if there is anything nearby which suggests that a potential hazard might exist. For example, a laboratory might use organic compounds which, when they evaporate, make the room air volatile. Potentially dangerous conditions might be seen or smelled. *The presence of substances such as cleaners, paint thinners, gasoline, alcohol, solvents, explosives, or similar items should be cause for concern.*

If conditions such as these exist, take appropriate action, such as one of the following suggestions.

- Determine that the environment is controlled (such as through the use of an exhaust hood) so that an offending substance or its fumes cannot reach the machine.
- Remove the offending substance.
- Install the machine in a different location.

The specific remedy will vary from site to site, but the principles remain the same. To avoid the risk of injury or damage, be alert for changes in the environment when performing subsequent service on any machine, and take appropriate action.

Unauthorized Modifications

Konica copiers have gained a reputation for being reliable products. This has been attained by a combination of outstanding design and a knowledgeable service force.

The design of the copier is extremely important. It is the design process that determines tolerances and *safety margins* for mechanical, electrical, and electronic aspects. It is not reasonable to expect individuals not involved in product engineering to know what effect may be caused by altering any aspect of the machine's design. Such changes have the potential of degrading product performance and reducing safety margins.

For these reasons, *installation of any modification not specifically authorized by Konica Business Machines U.S.A., Inc., is strictly prohibited.*

The following list of prohibited actions is not all-inclusive, but demonstrates the intent of this policy.

- Using an extension cord or any unauthorized power cord adapter.
- Installing any fuse whose rating and physical size differs from that originally installed.
- Using wire, paper clips, solder, etc., to replace or eliminate any fuse (including temperature fuses).
- Removing (except for replacement) any air filter.
- Defeating the operation of relays by any means (such as wedging paper between contacts).
- Causing the machine to operate in a fashion other than as it was designed.
- Making any change which might have a chance of defeating built-in safety features.
- Using any unspecified replacement parts.

General Safety Guidelines

This copier has been examined in accordance with the laws pertaining to various product safety regulations prior to leaving the manufacturing facility to protect the operators and service personnel from injury. However, as with any operating device, components will break down through the wear-and-tear of everyday use, as will additional safety discrepancies be discovered. For this reason, it is important that the technician periodically performs safety checks on the copier to maintain optimum reliability and safety.

The following checks, not all-inclusive, should be made during each service call:

CAUTION: Avoid injury. Ensure that the copier is disconnected from its power source before continuing.

- Look for sharp edges, burrs, and damage on all external covers and copier frame.
- Inspect all cover hinges for wear (loose or broken).
- Inspect cables for wear, frays, or pinched areas.

- Ensure that the power cord insulation is not damaged (no exposed electrical conductors).
- Ensure that the power cord is properly mounted to the frame by cord clamps.
- Check the continuity from the round lug (GND) of the power cord to the frame of the copier – ensure continuity. An improperly grounded machine can cause an electrically-charged machine frame.

Safeguards During Service Calls

Confirm that all screws, parts, and wiring which are removed during maintenance are installed in their original positions.

- When disconnecting connectors, do not pull the wiring, particularly on AC line wiring and high voltage parts.
- Do not route the power cord where it is likely to be stepped on or crushed.
- Carefully remove all toner and dirt adhering to any electrical units or electrodes.
- After part replacement or repair work, route the wiring in such a way that it does not contact any burrs or sharp edges.
- Do not make any adjustments outside of the specified range.

Applying Isopropyl Alcohol

Care should be exercised when using isopropyl alcohol, due to its flammability. When using alcohol to clean parts, observe the following precautions:

- Remove power from the equipment.
- Use alcohol in small quantities to avoid spillage or puddling. Any spillage should be cleaned up with rags and disposed of properly.
- Be sure that there is adequate ventilation.
- Allow a surface which has been in contact with alcohol to dry for a few minutes to ensure that the alcohol has evaporated completely before applying power or installing covers.

Summary

It is the responsibility of every technician to use professional skills when servicing Konica products. There are no short cuts to high-quality service. Each copier must be thoroughly inspected with respect to safety considerations as part of every routine service call. The operability of the copier, and more importantly, the safety of those who operate or service the copier, are directly dependent upon the conscientious effort of each and every technician.

Remember...when performing service calls, use good judgement (have a watchful eye) to identify safety hazards or potential safety hazards that may be present, and correct these problem areas as they are identified -- the safety of those who operate the copier as well as those who service the copier depend on it!

Outline of the Device

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1.1 Basic Specifications

1.1.1 General Specifications

(1) Applicable lines ..... PSTN
F network (1300H receptions are possible.Only Japan)

(2) Protocol ..... Group 3 (compliant to ITU-T T.30)
- ECM
- F-code communication
- Konica non-standard protocol : No
- Group 4 : No

(3) Maximum data rate 33,600bps

(4) Coding method ..... MH, MR and MMR

(5) Modulation method ..... V27ter, V29, (V.33), V17, V8 and V34
- V.33 is for reception only.

(6) Communication resolution ...

Normal	8 × 3.85 lines / mm
Fine	8 × 7.7 lines / mm
Super fine	8 × 15.4 lines / mm (reception only)
Super fine	16 × 15.4 lines / mm
Fine	200 × 200 pixels / inch
Super fine	400 × 400 pixels / inch

- Fixed to mm at transmission
- mm and inch are available at reception.
- Selection by using the [RESOLUTION] key.
- You can not change settings on every page.

(7) Fax memory size ..... 2 Mbyte Standard (allocated in the ERDH memory)
- In case of standard ERDH memory (32Mbyte): 4 Mbyte maximum. Possible to add in steps of 2 Mbyte
- In case of ERDH memory expansion (even 1 piece) : 16 Mbyte maximum.

(8) FAX memory backup ..... Yes Within 60 minutes (when batteries are full)
- Secondary battery
- Charging time: 28 hours
- Life: charging and discharging 5000 times

(9) Multiple line connection ..... No

(10) Communication time ..... Approx. 3 seconds (Konica standard A4 chart, 28,800bps)

(11) Resolution conversion

At Sending	Scanner	Density Conversion	Communication
	inch	inch→mm	mm
At Receiving	Communication	Density Conversion	Print
	mm	mm→inch	inch
	inch	inch→inch	inch

1.1.2 Scanning Section

(1) Scanning method ..... Platen documents

- Possible to scan book documents (book mode)
  RADF book documents
- In case of the platen machine, it is required to attach an RADF option when the FAX kit is attached.
- Scanning mode: One sided, Two sided and Cover+2sided
- Possible to scan the RADF mixed size documents.

(2) Scanning resolution ..... Normal 8 × 3.85 lines/mm
Fine 8 × 7.7 lines/mm
Super fine 16 × 15.4 lines /mm

- Selection by using the [Resolution] key.
- You can not change settings on each page.

(3) Mixed size original ..... Possible to mix documents of different sizes.

- After rotation of images, sizes are changed by EOM every time the length of the scan line is changed at sending.
- Possible to mix sizes (A and B).

(4) Density selection ..... Selection by using the [Density] key. [Lighter] / [Darker] / [Normal] / [Auto]

- You can not change settings on each page.

(5) Maximum scanning document width ..... 297 mm (A3 width) both for RADF and Platen

(6) Maximum scanning document length ... 420mm (A3 length) / (17 inch double letter) in the regular mode

- 800 mm at the maximum Long original mode by ADF

(7) Effective scanning range ..... Compliant to the copier standard
When a document is smaller than the effective scanning area, the area outside the document is erased.
- ADF scanning : left, right, head and bottom Mask of 3mm each (0 to 5mm)
- Platen scanning : left, right and head Mask of 2mm each (fixed)

(8) Automatic reduction at sending .... A3 → B4, A3 → A4 and B4 → A4
- Automatically reduced and sent in accordance with the recording paper size of remote station.

(9) Rotation transmission ..... A4 size only. SEF documents are rotated by 90 degrees at sending to send it in LEF direction.

(10) Page division at sending ..... No

(11) Halftone ..... 256 level error diffusion
- Users can change settings by using the [Quality] key.

(12) Automatic Background Contool (ABC) . Yes

(13) Finished stamp ..... No

(14) Scanning time..... 2.0 seconds (A4/LEF)

(15) Automatic feeder capacity ..... Compliant to the copier standards

1.1.3 Recording Section

(1) Recording ..... Compliant to the copier standards

(2) Recording paper size ..... All sizes except for B6 and Postcard (Refer to the copier basic specifications.) Auto recording paper selection
Note:A5 and B5 paper is used only for A5 and B5 reception respectively

(3) Recording paper cassette ... Tray 1 to Tray 4, bypass Tray.

(4) Staple ..... No

(5) Recording speed ..... Compliant to the copier standards

(6) Recording size ..... A3 size maximum
- A3 fix as reception record ability declaration in protocol.

(7) Maximum reception length .. 840mm
- In case of being larger than the maximum reception length, a communication error occurs.
- When the memory over occurs during reception, the received data is printed.

(8) Reduction record ..... When the received image information is larger than the recording paper, it is automatically reduced to the recording paper size and recorded.

(9) Page separation record ..... Yes

(10) Offset output at each communication .. Yes (Job unit reception only)

(11) Rotation reception ..... Yes
- Images are rotated by 90 degrees and recorded on the recording paper in LEF direction.

(12) Two-sided reception ..... Yes (Key operator mode)

(13) 2-in-1 reception ..... Print A4 × 2 →A3, B5 × 2 →B4 and A5 × 2 →A4
- When there are no regular sizes in the auto print setting, the 2-in-1 reception is not used.
- Two-sided reception has a precedence when both are specified.

(14) Smoothing ..... Yes
(at converting the resolution)

(15) Multiple copies recording .... No

(16) Bypass print ..... Possible to use as an active tray in auto selection mode.

(17) Total page counter ..... Compliant to the Copier standards

(18) Monitor print ..... No
(copy at sending)

1.1.4 Line Connecting Section

(1) NCU type ..... A-A~ and built-in NCU

(2) Connecting terminal RJ11

(3) Modem ..... Matsushita MMD-H3500

(4) Modem sending level ..... -10~-15 dBm (Country spec)

(5) DTMF sending level ..... -10~-15 dBm (Country spec)

(6) Receiving sensitivity ..... G3 reception: -43dB or less
Tone reception: -52dB or less

(7) Dialing signal ..... DP (10pps and 20pps) and DTMF

1.1.5 Operation Panel

(1) FAX/Copy/Printer
Mode switching ..... By panel key selection

- Possible to change modes during an operation of each mode.
- No mode return by the auto reset.
- A copy screen is shown when the power is turned on.

(2) Interruption during scanning ..... Operations by using the INTERRUPT button while scanning documents to be transmitted are invalid.

(3) Interruption during
recording in the FAX mode screen ... Operations by using the INTERRUPT button are invalid.

(4) FAX start ..... By using the START button.

- START button in needed for the one-touch key.

(5) Stop ..... By using the STOP button.

- Possible to appoint to stop from the job list so as to stop during operations of the multi jobs.

(6) FAX free memory display .... Yes
% indication on LCD during scanning, recording and stand-by.

(7) File existance indication ..... By DATA LED

- Files to be displayed are the reception files, transmission reservation files, polling reception reservation files and printer files
- Light off: There are no files.
- Light on: There are files.

(8) Display during the FAX communications ..... Icons are displayed on the FAX waiting screen and the FAX operation screen.

(9) Error display ..... Displayed by LED on FAX mode button.
Green: There are no errors.
Red: There are errors.
Error indication: all errors

(10) Time display ..... No

- Present time is displayed on the timer communication setting screen.

(11) Remote station ID display ... Yes

- The number display function can be used before communications (Japan only).
- The TSI/CSI display during communications

(12) Other operation buttons ..... APPLICATION button: Moves to the FAX application function setting screen.
OUTPUT button: Invalid
CHECK button: Valid
*/# button: Yes
HELP button: Yes
One-touch key: 20 keys

1.2 Functional Specifications

1.2.1 Dial Functions

(1) Abbreviated dial ..... Yes

- Possible to register 200 stations.
- Possible to appoint extension / external types.
- 38 digits maximum
- Possible to search the remote station list in the order of abbreviation numbers and names.
- The registration names must be 24 digits or less.
- Registration name auto registration function: No
- Second FAX No. registration function: No
- Possible to register the communication mode.
- Possible to register a part of application functions.

(2) One-touch dial ..... From the LCD touch panel or the one-touch keys.
20 keys.

(3) Program dial ..... Yes
The LCD touch-panel or one-touch key is used.

(4) Key pad dial ..... 38 digits maximum

(5) Group dial ..... Yes. Up to 20 groups. Possible to register group names. Up to 200 remote stations per each group by abbreviated numbers only.

(6) Chain dial / Additional dial ..... No

(7) Dialing of multiple remote stations ..... 210 remote stations maximum (abbreviated 200 + key pad 10)

(8) Manual redial ..... Yes

- Possible to select from five latest histories.

(9) Automatic redial ..... Yes

- Automatically redial when remote stations are busy or return no responses or transmission errors occur at the memory transmission
- Possible to receive during redial waiting.
- Anotner call is possible. (Not possible when there are two redial waiting jobs.)

(10) Pulse/Tone switching ..... Possible to switch by using the [Tone] key on the [Key pad] screen of the LCD.

(11) PBX mode setting ..... Yes
- Possible to turn On or Off the PBX connection and to register the external access code.
- There are automatic addition / automatic removal functions of external access code to registered abbreviated remote station No.

(12) Pseudo off-hook ..... Yes
- The manual start is possible by using the pseudo off-hook.
- [Off hook] button on LCD

(13) Call progress detection .....
- DC loop (Depends on country spec).
- Dial tone (Ditto)
- Busy tone (Ditto)
- Second dial tone (Ditto)

(14) Dial parameters .....
- Dialing signals DP (10pps and 20pps) and DTMF (Depends on country spec)
- Pause between digits 1 to 7 seconds (Users can set.)
- Pause between digits 3 seconds (fixed)

(15) Phone book dial ..... Yes
- After appointing one character, use up and down cursor keys.

(16) External phone connection jack ..... Yes
- Depends on specifications of each country.

1.2.2 Transmission

(1) Timer transmission ..... 24-hour (max.) timer setting is possible. (one station, sequential multi-stations transmission)

(2) Batch transmission ..... Possible to transmit data in a batch with the same set time, all remote stations, international communications and resolution.
(Timer batch)

(3) Timer polling ..... 24-hour (max.) timer setting is possible. (one remote station polling and sequential polling reception)

(4) No. of timers ..... 20 transmissions and pollings in total
The number of sequential pollings is one.

(5) Reservation report ..... The reservation report output is possible at the timer reservation.

(6) Memory transmission reservation ..... The memory transmission reservation is possible during communications. (memory registration of the RADF memory transmission and platen memory transmission documents)

(7) RADF transmission reservation .... No

(8) Fold erase transmission ..... No (possible to use the frame erasure transmission instead at the time of book transmission)

(9) Frame erase transmission ... Yes

- Platen documents and book documents
- ADF documents are possible as well.
- The regular mode only

(10) Automatic layout transmission
(Outside documents are erased.)..No

(11) Reverse-image transmission...No

(12) 2-in-1 transmission ..... Yes

- A4 × 2 → A3/B4/A4, B5 × 2 → B4/A4 and A5 × 2 → A4
- 2-in-1 and 2-sided are exclusive. 2-sided transmission takes precedence. (2-sided menu is gray-out.)

(13) Book transmission ..... Yes

- Transmission by dividing one page document into two pages. The document size is A3 and B4.
- Platen documents and ADF documents (regular-size document mode only) can be used.

(14) Scanning size appointment ..... Yes

- Scans documents in the appointed size irrelevant to document sizes and sends them. Transmits documents in the appointed scanning width and length at the platen transmission and the RADF transmission.
- The effective image area is based on the center. (Corner-base scanning in mixed-size document mode.)

(15) Document image quality appointment .. Yes

- Selected from Photo/line, Line and Photo.

(16) Multi-stations ..... 210 stations maximum (Abbr dial X 200 stations and key pad dial X 10 stations) The timer appointment is possible.

(17) Memory transmission ..... The quick memory transmission is default.

- When the FAX memory is full, automatically switched to the quick memory transmission.

	RADF Transmission	Platen Transmission	Mixture of RADF/ Platen Documents	Advanced Communication Function	Manual Transmission	Transmission When the Printer is Active
Quick Memory Transmission	○	One page only	×	△ (Only the communication mode is possible.)	○	×
Memory Transmission	○	○ After pressing the SCAN button to scan, press the START key to start communications.	○ After pressing the SCAN button to scan, press the START key to start communications.	○	×	○

○ Yes
× No
△ Partly Yes

(18) Forwarding transmission ..... Yes

- Automatic forward: Automatic forward of received documents to remote stations registered in advance.
- Manual forward: Manual forward of documents of substitute reception.

(19) Interruption transmission ..... Single station transmission reservation automatically interrupts between stations of multiple station communications.

(20) International communication ..... Yes

- When the remote station is V17, communications start at TCM 7,200bps. When the remote station is V34, they start at 28,800bps.

(21) V34-off transmission ..... Transmitted without V34 mode. The V34-off appointment can be registered in the abbreviated / program dials.
This is used when the transmission error code related to V34 occurs frequently.

(22) Long original transmission .. Possible to transmit long-length originals of 800mm maximum.

(23) ADF irregular-size transmission ..... Possible to transmit irregular-size documents from ADF. The main scanning is the max. document width set on ADF, and the sub scanning depends on document length. The maximum is 420 mm/17 inch.

(24) Restored transmission ..... Keep the transmission file causing the redial over / communication error for a designated time period in order to re-send it.

- Remote station No. is changeable.
- The file keeping time is selected from 12/24/48/72H.
- Only at the memory transmission is effevtive. (Not for quick memory transmission)

(25)Instant batch transmission (Bundled transmission) ... All reserved documents to the same remote station are sent in a batch.

- Not effective with the job being transmitted.
- Abbreviated dialing and key-pad dialing are recognized as a different station even if developed number is same.

(26) Confidential transmission ..... Transmission to the confidential BOX of a remote station by using the F code (SUB/SID). Appoints the confidential BOX No. by using SUB. Possible to select the SID sending Yes / No on the control panel.

(27) Relay request ..... The relay request by using the F-code (SUB/SID). Appoints the relay BOX No. by using SUB.

(28) Relay transmission ..... The relay transmission by using the F-code (SUB/SID). Registers final relay stations (group) in the relay BOX in advance. When the relay BOX is appointed by SUB, transmits to the registered relay group. After the relay transmission, files in the relay BOX are deleted. SID is essential.

1.2.3 Polling

(1) Polled transmission ..... There is one documents which allows the transmission setting.

- Documents are deleted after transmission.
- No additional scanning of documents
- No RADF polled transmission reservation

(2) Polling reception ..... The sequential polling is possible.
210 stations maximum (abbreviated dial × 200 stations and key pad dialing × 10 stations) Appointment of the 24-hour (max.) timer is possible.

(3) Call turnaround polling ..... No

(4) Called turnaround polling .... Yes

(5) Closed polling transmission No

(6) Selective polling ..... Transmission and reception.
The selective polling by using the F-code (SEP). There is a bulletin board BOX polling reception. No confidential BOX polling transmission

1.2.4 Line Seizure Mode and Telephone Function

(1) Line seizure mode switching Possible to set the automatic reception and the manual reception.

- When the memory is full and there are no polling transmission reservations, the automatic reception mode is cancelled.
- No switching of the auto / manual mode by appointing data and time

(2) Ans. Machine mode ..... Yes

- At the time of the CNG detection with the external phone off hook, a line is caught to start reception.

(3) Automatic reception mode .. Time and the number of rings.

- No. of rings : 0 to 15 times (country spec)
- Time : 0 to 15 secs (country spec)

(4) Hold ..... No

(5) Handset ..... No

(6) One-piece phone ..... Country spec

(7) Conversation reservation .... No

(8) Caller ID display (NTT service) ..... The number display is possible. Japan only

(9) Dial in service ..... Yes. Japan only

(10) Remote reception ..... Yes. 2-digit PB signal. Japan only.

1.2.5 Message Reception and Record

(1) Confidential reception ..... Reception at the confidential BOX appointed at the F-code (SUB). You can select the SID check on communications. At the time of printing documents received at the confidential BOX, a password to access to the confidential BOX is required.

(2) Closed reception ..... Closed reception by using the SID (PWD) (Junk FAX)

(3) Adaptive (automatic) reduction ..... 35 to 96% in steps of 1%
Becomes the adaptive reduction when "Page devided print = OFF" is selected. In case of the adaptive reduction, if the reception image size is a little bigger than recording paper, the size is automatically reduced so that it becomes within the recording paper size and is recorded.

(4) Fixed reduction ..... No

(5) Page separation record ..... Dose not overlap at the division.

(6) Equal size recording ..... Sent documents are recorded in the equal size (100%).
For bigger size documents, an appropriate tray is searched. For A3 or bigger documents, a part of documents are abandoned.

(7) Back end margin disposal ... No

(8) Cassette selection ..... Appropriate paper size auto selection
- When paper is running out, paper is provided from another cassette with the same size of paper.
- Tray-fix mode available

(9) Index print ..... No

(10) 2-in-1 reception ..... Yes
- A4 × 2 → A3, B5 × 2 → B4 and A5 × 2 → A4
- 2-sided reception is not done when there are no regular sizes or when one page is received.

1.2.6 Memory Function

(1) Display of used memory space ..... Yes

(2) Forced memory reception ..... A password is required for printing received files. The password (four digits) is set when the forced memory reception mode is set in the key operation mode.

(3) Memory substitute reception ... Yes (when there is no paper / no toner)

(4) Dual access ..... Refer to 9.1.

(5) Reception multi copy ..... No

1.2.7 Various Communication Function

(1) Short protocol ..... No

(2) ECM ..... Yes
- Window size: 16k byte / 64k byte

(3) Communication timer ..... Yes
- 24 hours maximum. 20 timers including one sequential polling timer 20 units.

(4) Redial waiting ..... Two redial timers maximum

(5) Error page resending ..... No (becomes the error page redial.)

(6) Error page redial ..... Effective to both quick memory transmission and memory transmission. Redial and retransmission in case of RTN or comm error.
- Redial interval: follows the busy redial interval.
- Num. of redials: 0 to 7 times (different counter from the busy redial)

(7) Total page number print ..... Yes
- Automatic print to the TTI in memory transmission.
- Added when the number of document pages is appointed for quick memory transmission.

(8) Header memo ..... No

(9) TTI (Transmitting Terminal ID) ..... Yes
- 30 characters maximum
- Added to the top of the sending images, not to the scanned document images when the image rotation or 2-in-1 is appointed. (When 2-in-1 is appointed, the TTI page becomes the page in the communication.)

(10) RTI (Receiving Terminal ID) .... Yes
- Recorded at the bottom before the image rotation / 2-in-1 combination are performed after processes for expansion or reduction
- Date, time and page no. are recorded.

(11) Remote diagnosis ..... Read / Write

(12) MH fix ..... No

(13) Urgent document sending mode.....No

(14) Document insertion after dialing .....Yes

Document insertion is possible after dialing.
Starts calling by using the [Start] button.

(15) Communication history ..... Yes

The last 100 communication histories are recorded in the communication journal.

(16) Machine communication management .....Yes

- The total number of sent pages, received pages, no. of transmissions and no. of receptions are respectively shown in the management list (for service).

(17) Electronic key counter ..... Yes

- The number of transmitted pages to each user. Limit control is not done.

(18) Key counter..... Yes

- When the key counter is not attached, use the parameter setting for the transmission operation.
  The reception and recording are performed

(20) Coin vender ..... No

- It is impossible to use with FAX.

1.2.8 User Lists / Reports

(1) Communication Journal ..... The total of 100 communications (sending and reception) can be recorded.
Automatic output ... at Every 100 com / daily / at Every 100 & daily
Manual output ..... Yes

(2) Transmit reserve report ..... Automatic output Users can turn ON / OFF.

(3) Transmit report ..... Automatic output (Always / Only on error / Users can turn OFF)
Possible to output with images

(4) Polled Tx reserve report.....Automatic output Users can turn ON / OFF.

(5) Polled Tx result report ..... Automatic output Users can turn ON / OFF.

(6) Sync transmit reservation report ..... Automatic output Users can turn ON / OFF.

(7) Sync transmit result report ..... Automatic output Users can turn ON / OFF.

(8) Polled Rx reserve report ..... Automatic output Users can turn ON / OFF.

(9) Sequential poll, Rx reservation report .... Automatic output Users can turn ON / OFF.

(10) Sequential poll, Rx result report ..... Automatic output Users can turn ON / OFF.

(11) Confidential Rx report ..... Manual output (numeric order or alphabetic order)

(12) Polled Tx result report ..... Manual output

(13) Relay Request Rx report ..... Manual output

(14) Relay Sync Tx result report ..... Manual output

(15) Abbr dial list ..... No

(16) Program entery list ..... Yes (No responses to requesting stations)

(17) Group dial list ..... Auto output at the F code confidential reception

(18) Fax setting list ..... Yes

1.2.9 Other User Functions

(1) Fax ID ..... Number ID: 20 digits (max.)

(2) Header note ..... No

(3) Language selection ..... Yes

1.2.10 Service Mode Function

Refer to the Chapter 2 for details

1.2.11 FAX Service Counter

- FAX counts by each paper size
- Counts for the communication system

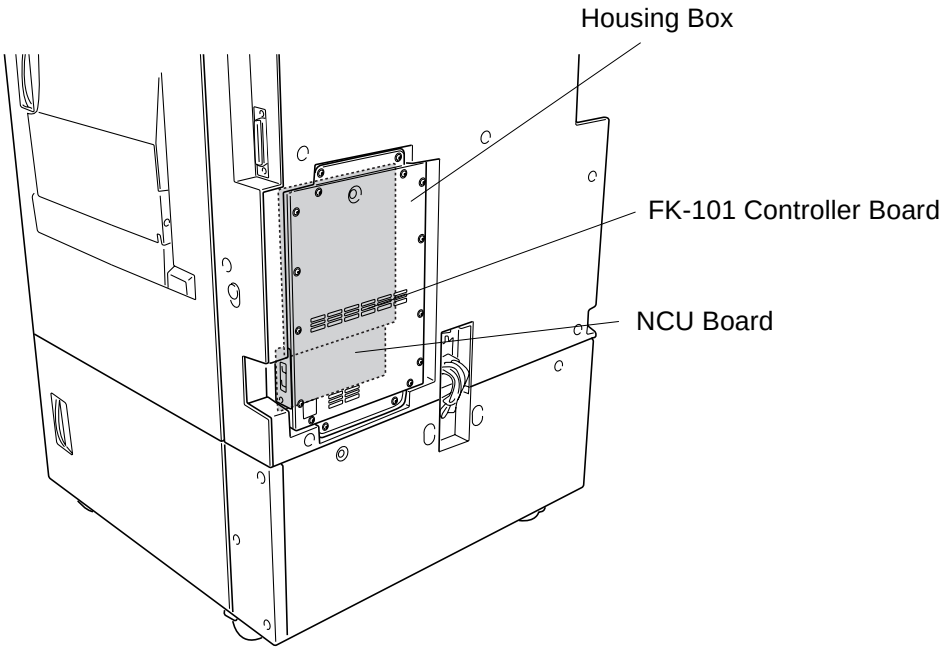
Refer to 3.4 for details.

1.3 Components Location

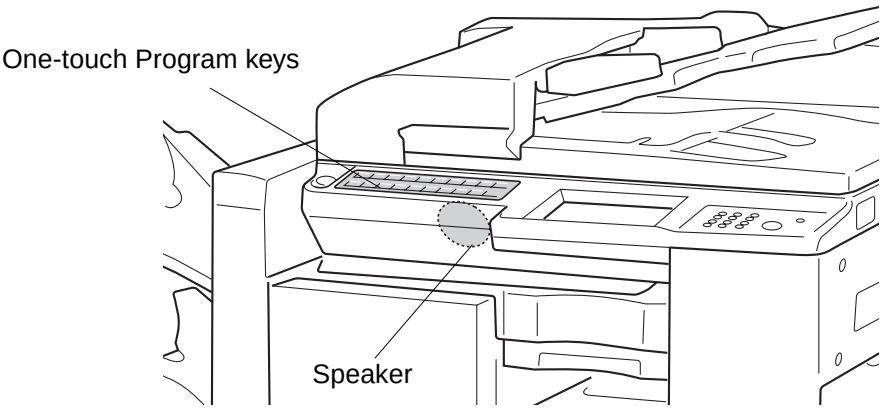
The location of the FK-101 is shown as follows.

The FK-101 body is attached to the lower-left corner of the back side of the Copier.

The one-touch program keys and the speaker are located at the upper-left corner of the Copier.



Location of the One-touch Program Keys and the Speaker



1.4 Inhibited Combinations

The following show combinations of application functions.

First \ Second	Memory transmission	2-in-1 Tx	Book transmission	Frame erase transmission	Original size select	Total page setting	Mixed size original	Z fold documents	Irregular documents	Long length documents	Edge correction	Polled transmission
Memory transmission		○	○	○	○	×	○	○	○	○	○	○
2-in-1 Tx	Auto selection		×	×	○(▼1)	×	×	○	×	×	×	○
Book transmission	Auto selection	×		○	○(▼2)	×	×	○	×	×	×	○
Frame erase transmission	Auto selection	×	○		○	×	○	○	×	×	○	○
Original size select	Auto selection	○(▼3)	○(▼4)	○		×	○	○	○	○	○	○
Total page setting	Auto cancellation	Auto selection	Auto selection	Auto selection	Auto selection		Auto selection	○	○	○	○	×
Mixed size original	Auto selection	×	×	○	○	×		×	×	×	×	○
Z fold documents	○	○	○	○	○	○	×		×	×	○	○
Irregular documents	○	×	×	×	○	○	×	×		×	○	○
Long length documents	○	×	×	×	○	○	×	×	×		×	○
Edge correction	○	×	×	○	○	○	×	○	○	×		○
Polled transmission	Auto selection	○	○	○	○	×	○	○	○	○	○	
Polling reception	×	×	×	×	×	×	×	×	×	○	×	×
Timer transmission	Auto selection	○	○	○	○	×	○	○	○	○	○	×
Int'l com mode	○	○	○	○	○	○	○	○	○	○	○	×
ECM OFF	○	○	○	○	○	○	○	○	○	○	○	×
V.34 OFF	○	○	○	○	○	○	○	○	○	○	○	○
Confidential transmission	○	○	○	○	○	○	○	○	○	○	○	×
Bulletin board	○	○	○	○	○	○	○	○	○	○	○	×
Relay request	○	○	○	○	○	○	○	○	○	○	○	×
Two sided	○	×	○	○	○	○	○	○	○	×	○	○
Cover+2sided	Auto selection	×	○	○	○	×	○	○	○	×	○	○
Platen	○	○(▼5)	○	○	○	○	○	○	○	○(▼5)	○(▼5)	○

First \ Second	Polling reception	Timer transmission	Int'l com mode	ECM OFF	V.34 OFF	Confidential transmission	Bulletin board	Relay request	Two sided	Cover+2sided	Platen	Document scanning
Memory transmission	×	○	○	○	○	○	○	○	○	○	○	○
2-in-1 Tx	×	○	○	○	○	○	○	○	×	×	×	○
Book transmission	×	○	○	○	○	○	○	○	○	○	○	○
Frame erase transmission	×	○	○	○	○	○	○	○	○	○	○	○
Original size select	×	○	○	○	○	○	○	○	○	○	○	○
Total page setting	×	Auto cancellation	○	○	○	○	○	○	○	×	○	×
Mixed size original	×	○	○	○	○	○	○	○	○	○	○	○
Z fold documents	×	○	○	○	○	○	○	○	○	○	○	○
Irregular documents	×	○	○	○	○	○	○	○	○	○	○	○
Long length documents	○	○	○	○	○	○	○	○	×	×	×	○
Edge correction	×	○	○	○	○	○	○	○	Auto selectio	○	○	○
Polled transmission	×	×	×	×	○	×	×	×	○	○	○	○
Polling reception		○	×	×	○	×	○	×	○	×	○	×
Timer transmission	×		○	○	○	○	○	○	○	○	○	○
Int'l com mode	×	○		○	○	○	○	○	○	○	○	○
ECM OFF	×	○	○		×	○	○	○	○	○	○	○
V.34 OFF	○	○	○	○		○	○	○	○	○	○	○
Confidential transmission	×	○	○	○	○		×	×	○	○	○	○
Bulletin board	○	○	○	○	○	×		×	○	○	○	○
Relay request	×	○	○	○	○	×	×		○	○	○	○
Two sided	○	○	○	○	○	○	○	○		Auto cancellation	Auto cancellation	○
Cover+2sided	×	○	○	○	○	○	○	○	Auto cancellation		Auto cancellation	○
Platen	○	○	○	○	○	○	○	○	×	×		○

Auto selection : Automatically selects a memory transmission.
Auto cancellation : Automatically cancels the function which was previously selected.
(▼1) : B6R, B4, A3 and Legal are not selectable.
(▼2) : Only B4, A3 and Legal are selectable.
(▼3) : Not selectable when B6R, B4, A3 and Legal are selected.
(▼4) : Not selectable when other paper sizes than B4, A3, Legal are selected.
(▼5) : Changed to the RADF mode.

- On the application function screen shown while pausing the document scanning, the selected application function buttons are inverted in black and other advanced function buttons which can no be changed become gray out. (The document size can be changed at selection of mixed size documents only.)

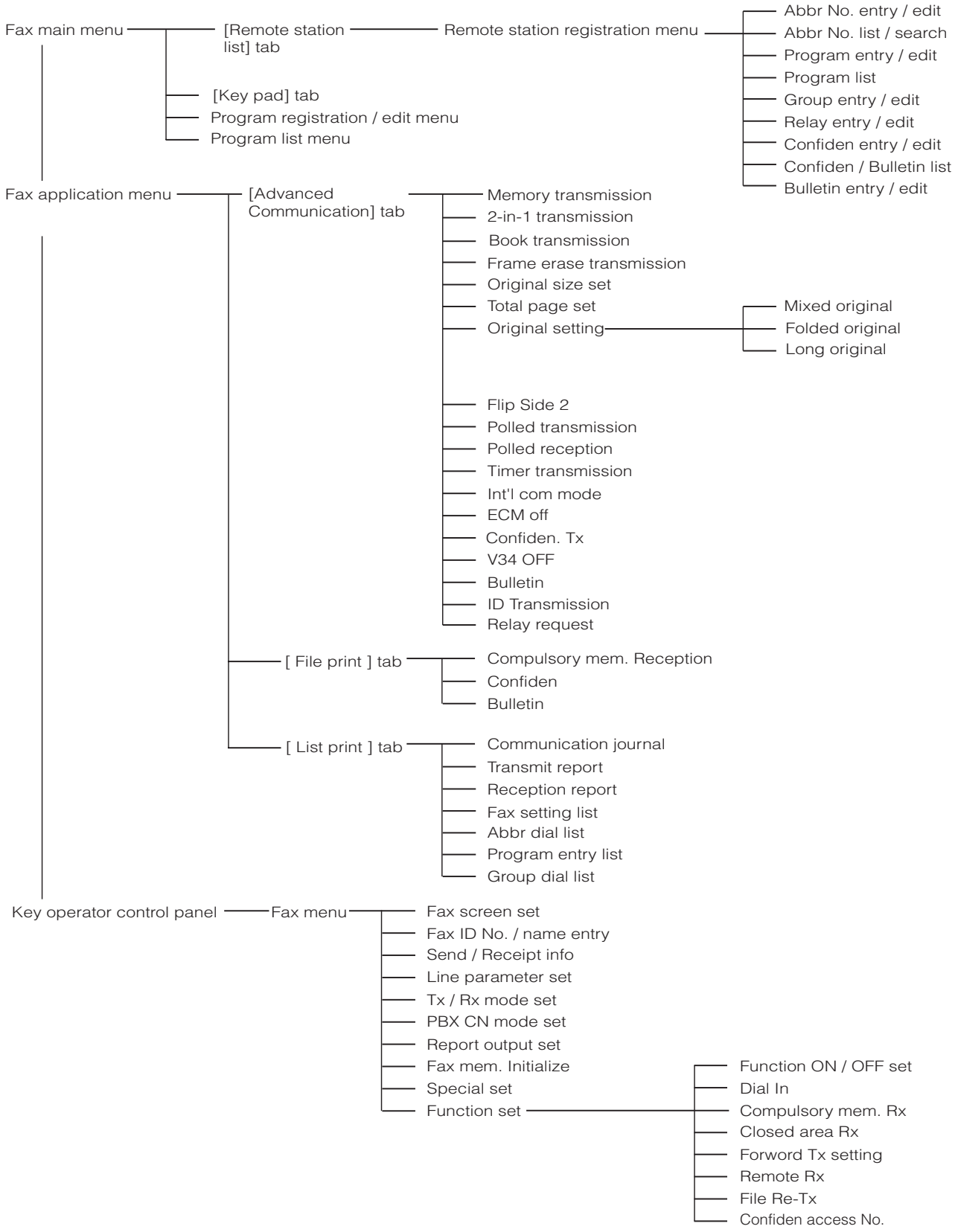
2

Outline of Operations

HOME

2.1 Operation Menu

2.1.1 Menu for Users



2.1.2 Menu for Service

- Key operator operation screen
  - FAX setting
    - Special setting
      - FAX nonvolatile parameter setting
        - Modem/NCU

V34 send max.bit speed	33600 to 2400[bps]
V34 Rx max. bit speed	33600 to 2400[bps]
V34 max.SYMB speed	3429,3200,3000,2800,2400[baud]
V34 contlrol CH speed	2400,1200[bps]
V34 SYMB criterion(S/N)	-6 to +6[dB]
V34 SYMB select (Distortion)	-6 to +6[dB]
V34 main CH speed	-8 to +7[dB]
V17 send max.speed	V17-14400,V17-12000,V17-9600,V17-7200, V29-9600,V29-7200,V27-4800,V27-2400[bps]
V17 Rx max. speed	V17-14400,V29-9600,V27-4800[bps]
PIX TxATT	-10 to -15[dB]
TONE/protocol TxATT	-10 to -15[dB]
CED/ANSam TxATT	-10 to -15[dB]
CD/SED ON level	-33,-38,-43,-48[dB]
DTMF TxATT	-6 to -11[dB]
DTMF H-L difference	1 to 4.0[dB]
Tx cable EQL	0,4,8,12[dB]
Rx cable EQL.	0,4,8,12[dB]

        - Communication

V8 / V34protocol	ON / OFF
Fax KRDS protocol	ON / OFF
V17 EP TONE	ON / OFF
V29 EP TONE	ON / OFF
T1 TIMER	30 to 90[second]
Int'l com function	ON / OFF
V34 Int'l com speed	31200 to 16800[bps]
V17 Int'l com speed	12000 to 7200[bps]
V29 int'l com speed	9600 to 2400[bps]
DIS for Int'l com	1,2[times]
ECM function	ON / OFF
Frame size on ECM send	256,64[bytes]

Coding ability	MH,MH / MR,MH / MR / MMR
ANSam send time	1.0 to 5.5[second]
CED-DIS DELAY TIMER	50 to 150[ms]
DCS-PIX DELAY TIMER	50 to 150[ms]
PIX-PMC DELAY TIMER	50 to 150[ms]
EOL-EOL TIMER	4.0 to 25.5[second]
CFR-PIX WAIT TIMER	6.0 to 25.5[second]
EOM-PIX WAIT TIMER	5.5 to 25.5[second]
JM WAIT TIMER	6.0 to 25.5[second]
V17 selection mode "-"	OFF / ON
Network	
RCV signal detect mode	Number./time
RCV signal detect time	0 to 15[second]
Pause time	1 to 7[second]
Response waiting time	35 to 115[second]
DC-LOOP check	OFF / ON
Busy tone detection	ON / OFF
No. of busy tones	0 to 15[times]
1300 Hz detection	ON / OFF
Pseudo RBT send level	-10 to -15[dBm]
Pseudo RBT cadence	Japan, USA, UK, Germany, None
Min.RING OFF time	100 to 1000[ms]
List output mode	
Diag. code journal	OFF / ON
Transmission report	With image / W/O image
Protocol auto print	Only error / OFF / Always
System	
Fame erasure HP	5,10,15[mm]
Book mode page order	Tx L to R/Tx R to L
Auto rotation Tx(B5R)	OFF / ON
Auto rotation Tx(LT)	ON / OFF
Auto rotation Tx(A4)	ON / OFF
No. of redials (error)	0 to 7[times]
Error page re-send mode	Error page / All pages
Fax board watch dog	ON / OFF
Original scan mode	Nou standard/Normal
RCV/Print STOP	Valid / Not valid
Report auto output STOP	Valid / Not valid
Fax BOOT rewrite on ISW	OFF / ON
Error code display time	10 to 250sec(10) /Hold
Tx without key counter	Valid / Not valid
Print W/O key counter	Valid / Not valid
Confidential com.	ON / OFF
Relay communication	ON / OFF

Closed area RX	ON / OFF
Dial IN function	ON / OFF
Remote RX	ON / OFF
Number display	ON / OFF
Compulsory mem.	ON / OFF
File Re-Tx	ON / OFF
Bundled Tx	ON / OFF
Communication W/O BOX	Normal reception / Communication error
Function parameter	
FAX File format	Fax file size
List print	
Service-use parameter list	
Protocol trace list	
TEST	
Signal sending test	
V34 mainCH.send test	33600 / 31200 / 28800 / 26400 / 24000 / 21600 / 19200 / 16800 / 14400 / 12000 / 9600 / 7200 / 4800 / 2400
V34 mainCH.send test	CTL CH / INFOc / INFOa / Tone B / Tone A
V8 sigl.send test	CM / JM
V17 sigl.send test	14400 / 12000 / 9600 / 7200
V29 sigl.send test	9600 / 7200
V27 ter sigl.send test	4800 / 2400
V21 sigl.send test	-
PB sigl.send test	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / */ # / A / B / C / D
DP sigl.send test	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9
Tone send(Pre-select)	1100 / 1300 / 1650 / 2100 Hz
Tone send(100 HZ step)	200 to 4000 Hz
PB(High)tone send test	1209 / 1336 / 1477 / 1633 Hz
PB(Low)tone send test	697 / 770 / 852 / 941 Hz
Pseudo RBT send test	-
Signal receiving test	
V17 sigl.receive test	14400 / 12000 / 9600 / 7200
V29 sigl.receive test	9600 / 7200
V27 ter sigl.receive test	4800 / 2400
V21 sigl.receive test	-
PB sigl.receive test	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / * / # / A / B / C / D
Tone receive Pre-select	1100 / 1300 / 2100 Hz
Hi-Z trans sigl receive	-

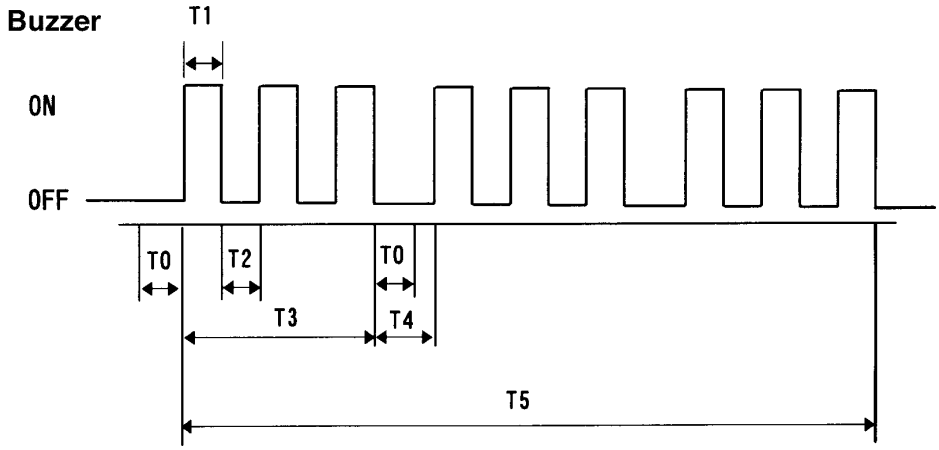
- NCU test
  - CML relay test
  - PULSE relay test
  - EARTH relay test
  - LOOP relay test
  - DC-LOOP detect test
  - Speaker test
- Initialization
  - Abbr entry data
  - function parameter
  - Program entry data
  - Com journal data
  - Group entry data
  - F-code Box data

2.2 Buzzer Sound

2.2.1 Kinds

Kinds of Buzzer Sound	Meaning	Sound Off
Key receiving sound	A sound made when a key has been accepted.	Spontaneous sound off
End sound	A sound made when an operation has been normally completed.	Spontaneous sound off
Error sound	A sound made when an error has occurred.	When the cause of the error is removed, or spontaneous sound off (FP switching)

2.2.2 Pattern



Kinds	Time without Sound before and after Combinations T0	Time of a Single Sound T1	Time of a Single Sound T2	Time When Single Sounds are Repeated T3 (No. of Repetition)	Time of Multiple Sounds T4	Time When a Single Sound are Repeated T5	Buzzer sound
Key receiving sound	500ms	50ms	—	—	—	—	PiP
Communication end sound	—	1s	—	—	—	—	PiP PiP PiP
Communication error sound	—	500ms	500ms	4.5s (five times)	—	—	Peep

3

Service Mode

HOME

3.1 Outline of Service Mode

3.1.1 Service Mode and Test Mode

The service mode and the test mode are provided in this machine for the purpose of the following operations.

- Initial settings at the time of instllation and rewriting ROM.
- In order to deal with customers' claims after installation, setting status and operations of devices are checked and operational conditions are changed for analyzing troubles.

Although you can enter both the service mode and the test mode in the same operational method, this manual provides “4. Test Mode” to explain the test mode for your easy understanding.

3.1.2 Service Mode Menu Tree

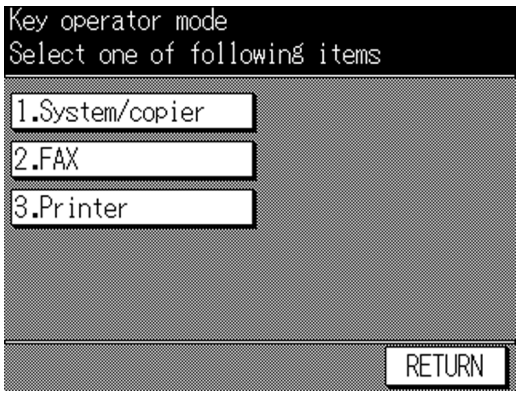
The service mode includes the following three menus, each of which includes sub menus.
Supplement: See “2.1.2 Menu for Services” for details of menu trees.

Function parameter setting	• Modem/NCU	See “3.2.1”.
	• Communication	See “3.2.2”.
	• Network	See “3.2.3”.
	• List output mode	See “3.2.4”.
	• System	See “3.2.5”.
	• Machine setting	See “3.2.6”.
FAX File format		See “3.5”.
List print	• Service-use parameter list	
	• Protocol trace list	See “3.3”.
Initialization	• Abbr entry data	
	• Function parameter	
	• Program entry data	
	• Journal data	
	• Group entry data	
	• F-code BOX data	See “3.6”.

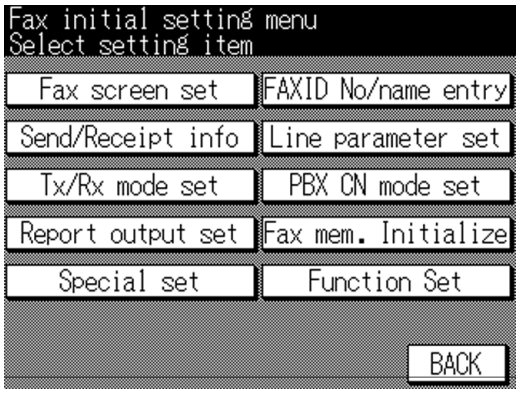
3.1.3 How to Enter the Service Mode

<Operational Procedure>

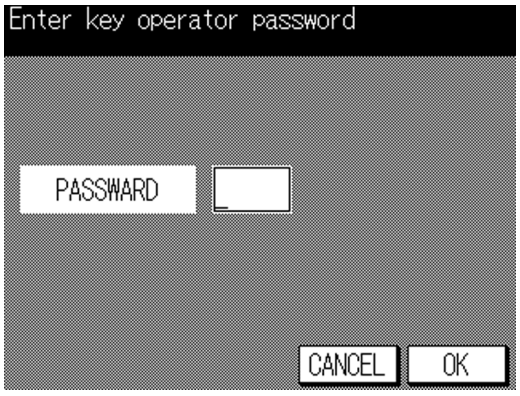
1. Turn off the power switch.
2. While holding down the [HELP] button of the operation panel, turn on the power switch.
3. Press the [2. FAX] key.



4. Press the [Special set] key.



5. Enter the secret password for servicemen (9272) in the box of [PASSWORD] and press [OK].



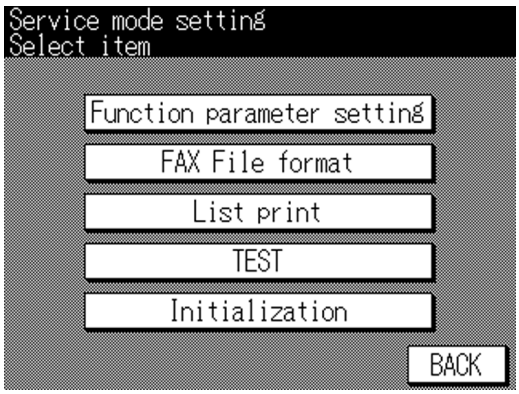
3.2 Function Parameter Setting

3.2.1 Modem/NCU

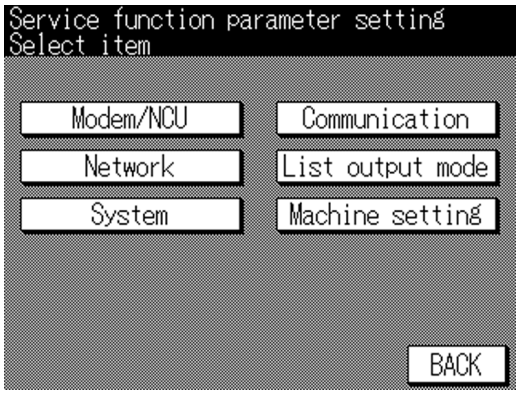
<Operational Procedure>

1. Refer to “3.1.3 How to Enter the Service Mode” to display the [Service mode setting] screen.

2. Press the [Function parameter setting] key.



3. Press the [Modem/NCU] key.



4. Select a parameter by pressing the [▲] key / [▼] key.

   Supplement: Press the [▼] key to display the next parameter. Press the [▲] key to return to the previous parameter.

5. Press the [EDIT] key until the set value you would like to select.

Parameter	Set Value	Factory-shipped Default Setting	Reference
V34 send max.bit speed	33600to2400[bps] (in steps of 2400)	33600[bps]	
V34 Rx max. bit speed	33600to2400[bps] (in steps of 2400)	33600[bps]	
V34 max.SYMB speed	3429,3200,3000,2800,2400[baud]	3429[baud]	Yes
V34 contlrol CH speed	2400,1200[bps]	1200[bps]	Yes
V34 SYMB criterion (S/N)	-6 to +6[dB] (in steps of 1dB)	0[dB]	Yes
V34 SYMB select (Distortion)	-6 to +6[dB] (in steps of 1dB)	0[dB]	Yes
V34 main CH speed	-8 to +7[dB] (in steps of 1dB)	0[dB]	Yes
V17 send max.speed	V17-14400 to V27-2400 [bps]	V17-14400[bps]	
V17 Rx max.speed	V17-14400 to V27-4800 [bps]	V17-14400[bps]	
PIX TxATT	-10 to -15 [dBm] (in steps of 1dBm)	-10[dBm]	Yes
TONE/protocol TxATT	-10 to -15 [dBm] (in steps of 1dBm)	-10[dBm]	Yes
CED/ANSam TxATT	-10 to -15 [dBm] (in steps of 1dBm)	-10[dBm]	Yes
CD/SED ON level	-33,-38,-43,-48[dBm]	-48[dBm]	Yes
DTMF TxATT	–6 to -11[dBm] (in steps of 1dBm)	-8[dBm]	
DTMF H-L difference	1 to 4.0[dB] (in steps of 0.5dB 0=0.0dBm)	2.0[dB]	
Tx cable EQL	0,4,8,12[dB]	0[dB]	Yes
Rx cable EQL	0,4,8,12[dB]	0[dB]	Yes

■ Detailed Explanation

Max.SYMB speed

- Maximum modulation speed (baud rate) of V.34

  3429 33.6k to 4.8k
  3200 31.2k to 2.4k
  3000 28.8k to 2.4k
  2800
  2400
- Effective both at the time of sending and receiving
- The upper limit value of V.34 maximum bit speed is determined.
- Normally you do not need to change the value. In the case that a V.34 error frequently occurs, set to SYMB3000.

V34 contlrol CH speed

- A bit speed of the control channel
- Default is 1200 (The bit speed of many modems is 1200.)
- The negotiation of 2400/1200 is performed in the V.34 start-up procedure.
- Normally you do not need to change the setting.

V34 SYMB select criterion(S/N and Distortion)

- S/N is measured by sending and receiving line conditioning signal (L1/L2) in the Phase 2. Its result determines the SYMB speed (modulation speed).
- -6 to +6 [dB]
- S/N.....It becomes easy to select a high SYMB by using “- direction”.
- Distortion..It becomes easy to select a high SYMB by using “+ direction”.
- After S/N and distortion are measured, optimum SYMBOL rate is determined.
- Parameter peculiar to Matsushita modems

V34 main CH speed

- The bit speeds of V.34 are determined by the Phase 3 (training).
- This functional parameter sets thresholds for the bit speed determination.
- -8 to +7 (dB)
- It becomes easy to select a high speed by using “- direction”.
- Parameter peculiar to Matsushita modems

PIX TxATT, TONE/protocol TxATT, CED/ANSam TxATT and DTMF TxATT

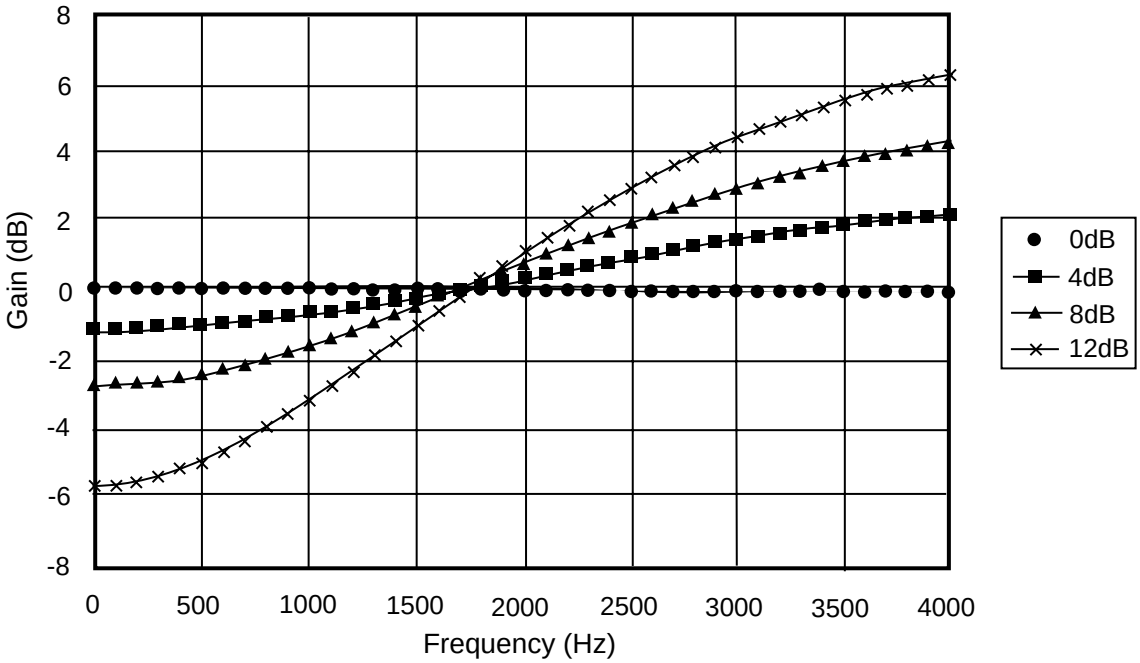
- Outout level setting
- -10 to -15 [dBm] (DTMF is between -6 and -11 [dBm])
- Directly sets modem. There are no external attenuator.

CD/SED ON level

- Reception signal sensitivity level -33 to -48 [dBm] in steps of 5dBm
- SED is not used.
- Default is -48dBm.

Tx cable EQL and Rx cable EQL

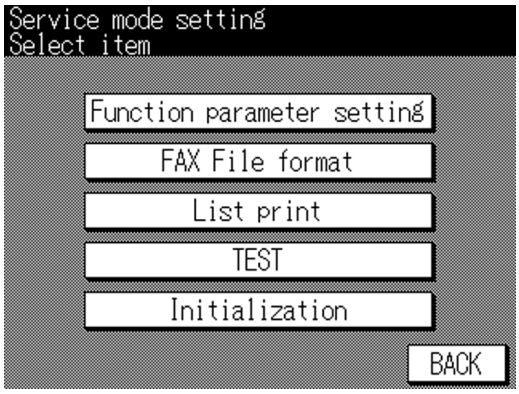
Frequency Response of the Cable Attenuation Equalizer



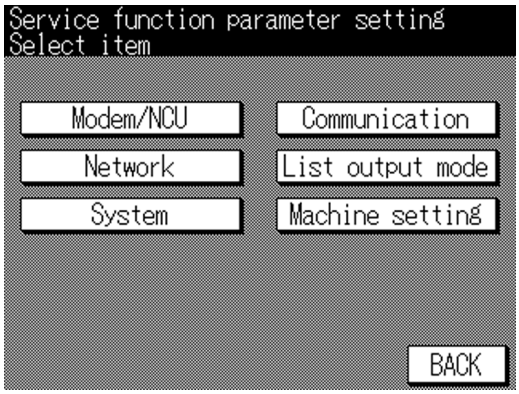
3.2.2 Communication

<Operational Procedure>

1. Refer to “3.1.3 How to Enter the Service Mode” to indicate the [Service mode setting] screen.
2. Press the [Function parameter setting] key.



3. Press the [Communication] key.



4. Select a parameter by pressing the [▲] key / [▼] key.
   Supplement: Press the [▼] key to display the next parameter. Press the [▲] key to return to the previous parameter.
5. Press the [EDIT] key until the set value you would like to select.
6. Press the [BACK] key.

Parameter	Set Value	Factory-shipped Default Setting	Reference
V8 / V34 protocol	ON / OFF	ON	
Fax KRDS protocol	ON / OFF	ON	Yes
V17 EP TONE	ON / OFF	ON	Yes
V29 EP TONE	ON / OFF	OFF	Yes
T1 TIMER	30 to 90[second] (Set the value in steps of 5s.)	35[sec]	Yes
Int'l com function	ON / OFF	ON	Yes
V34 Int'l com speed	33600 to 16800[bps] (in steps of 2400)	28800[bps]	
V17 Int'l com speed	14400 to 7200[bps](in steps of 2400)	7200[bps]	
V29 int'l com speed	9600 to 2400[bps](in steps of 2400)	4800[bps]	
DIS for Int'lcom	1,2[times]	1[time]	
ECM function	ON / OFF	ON	
Frame size on ECM send	256,64[bytes]	256[bytes]	
Coding ability	MH,MH,/MR,MH/MR/MMR	MH / MR / MMR	Yes
ANSam send time	1.0 to 5.5[second] (Set the value in steps of 0.5ms.)	4.0[sec]	Yes
CED-DIS DELAY TIMER	50 to 150[ms] (Set the value in steps of 10ms.)	80[ms]	Yes
DCS-PIX DELAY TIMER	50 to 150[ms] (Set the value in steps of 10ms.)	80[ms]	Yes
PIX-PMC DELAY TIMER	50 to 150[ms] (Set the value in steps of 10ms.)	80[ms]	Yes
EOL-EOL TIMER	4.0 to 25.5[second] (Set the value in steps of 0.5s.)	13.0[sec]	Yes
CFR-PIX WAIT TIMER	6.0 to 25.5[second] (Set the value in steps of 0.5s.)	6.0[sec]	Yes
EOM-PIX WAIT TIMER	5.5 to 25.5[second] (Set the value in steps of 0.5s.)	6.0[sec]	Yes
JM WAIT TIMER	6.0 to 25.5[second] (Set the value in steps of 0.5sec.)	9.0[sec]	Yes
V17 selection mode "-"	ON / OFF	OFF	Yes

■ Detailed Explanation

Fax KRDS protocol

- When set to "ON,"
  - The FAX parameter remote diagnosis along with the copier parameter become possible.
  - File transfer methods in the FAX procedure ((V.34), V.17, V.29, etc.) by using the FAX board, not the external modem

V.17 EP TONE and V.29 EP TONE

- Whether the EP tone (Echo Protect: 2100Hz) is added to the top of the training signal.

T1 TIMER

- T1 timer (T.30 standard) : Calling: designate by the response waiting timer
  Called: Starts after DIS is output.
  The waiting time until DCS is received.
- Response waiting timer (55sec)
  : Calling : Starts after dialing. Until CED is received.

Int'l com function

- V.34, V.17 and V.29 International communication mode speed
- The mode using the number of DIS waiting is turned ON.
- The international communication mode setting at the time of transmission becomes effective.

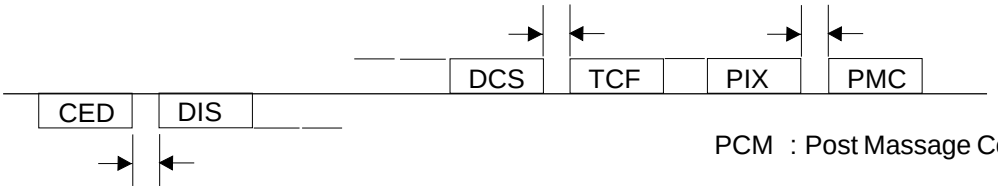
Coding ability

- Effective to both sending and reception.

ANSam send time

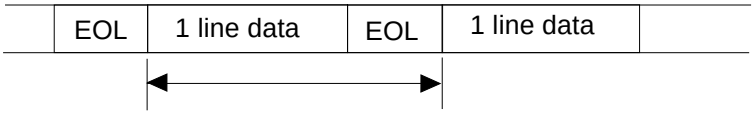
- Determines the ANSam output time of V.8 procedure signal.
- Normally you do not need to change.

DELAY TIMER



PCM : Post Massage Command

EOL-EOL TIMER



CFR-PIX WAIT TIMER

- Sets the waiting time from CFR is sent to the image signals are received. Radio fax on boats occasionally requires more the 6 sec.

EOM-PIX WAIT TIMER

- Some fax machines sends PIX without returing to Phase B in spite of EDM. Waiting time to receive PIX before sending DIS when EOM is used.

JM WAIT TIMER

- Time to continue outputting CM until receiving JM. Some machines cannot receive CM with simultaneously sending ANSam.

V.17 Selection mode “-”

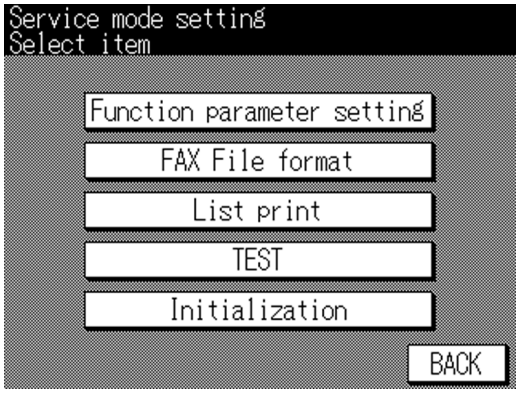
- V.34 is killed when a dash (-) is added at the top of dial number.

3.2.3 Network

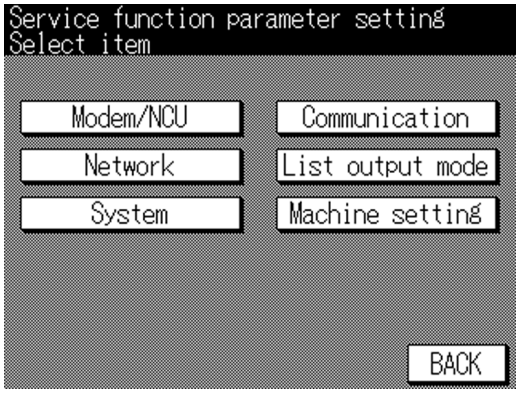
<Operational Procedure>

1. Refer to “3.1.3 How to Enter the Service Mode” to indicate the [Service mode setting] screen.

2. Press the [Function parameter setting] key.



3. Press the [Network] key.



4. Select a parameter by pressing the [▲] key / [▼] key.

   Supplement: Press the [▼] key to display the next parameter. Press the [▲] key to return to the previous parameter.

5. Press the [EDIT] key until the set value you would like to select.

6. Press the [BACK] key.

Parameter	Set Value	Factory-shipped Default Setting	Reference
RCV signal detect mode	Number / time	Number	Yes
RCV signal detect time	0 to 15[second] (in steps of 1 second)	6[sec]	
Pause time	1 to 7[second] (in steps of 1 second)	1[sec]	Yes
Response waiting time	35 to 115[second]	55[sec]	Yes
DC-LOOP check	ON / OFF	OFF	Yes
Busy tone detection	ON / OFF	ON	Yes
No. of busy tones	0 to 15[times] (Zero time equals to no detection.)	2	Yes
1300 Hz detection	ON / OFF	ON	
Pseudo RBT send level	-10 to -15[dBm] (in steps of 1dB)	-10[dBm]	
Pseudo RBT cadence	None, Japan, USA, UK and German	Japan	
min.RING OFF time	100 to 1,000[ms]	200[ms]	

■ Detailed Explanation

RCV signal detect mode

- Sets to “Time” when ninger can not be detected by the number.

Pause time

- The pause time for one pause key (pause between digits)

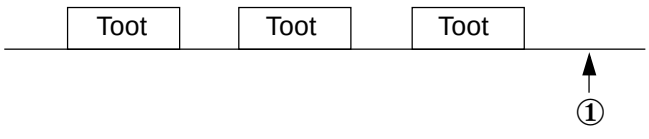
Response waiting time

- Refer to 3.2.2 T1 TIMER section.

DC-LOOP check

- Checks the DC loop current before dialing.
- When the current is zero, an error occurs. (T.80, an error code is not displayed.)
- You can change the setting to be compliant to standards in other countries. In Japan, set this parameter to OFF.

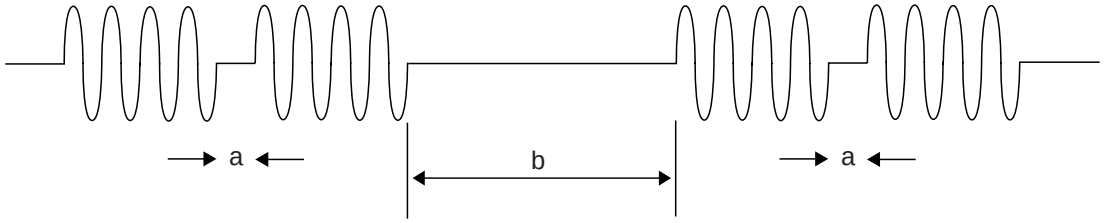
Busy tone detection and No. of busy tones



①
When the number of tones is set to three, judged to be busy here.

min. RING OFF time

- MInimum time to recognize ringer interval.
  For country spec.



b:Ring-off time

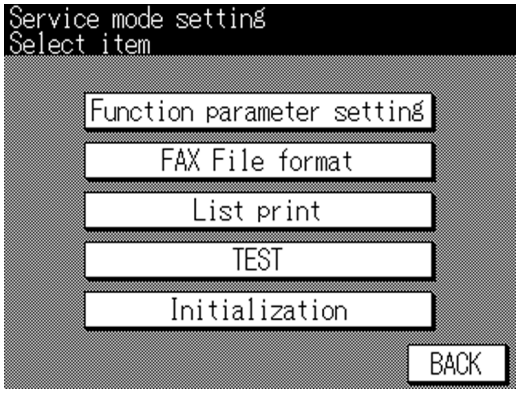
a :To avoid judging “a” as a ring-off time.

3.2.4 List Output Mode

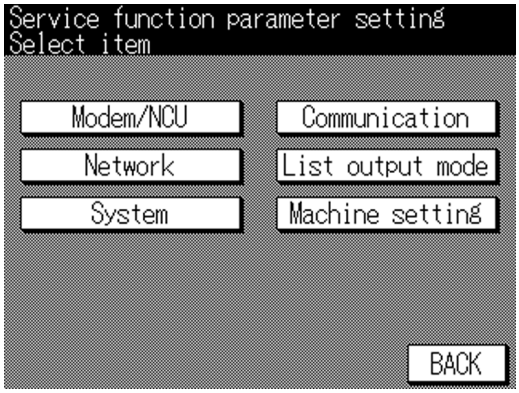
<Operational Procedure>

1. Refer to “3.1.3 How to Enter the Service Mode” to indicate the [Service mode setting] screen.

2. Press the [Function parameter setting] key.



3. Press the [List output mode] key.



4. Select a parameter by pressing the [▼] key / [▲] key.

   Supplement: Press the [▼] key to display the next parameter. Press the [▲] key to return to the previous parameter.

5. Press the [EDIT] key until the set value you would like to select.

6. Press the [BACK] key.

Parameter	Set Value	Factory-shipped Default Setting	Reference
Diag. Code journal	ON / OFF	OFF	Yes
Transmission report	W/O image / With image	With image	Yes
Protocol auto print	OFF / Always / Only error	OFF	

■ Detailed Explanation

Diag. Code journal

When set to “ON,”
- An error code is shown on the communication journal and the screen.
- The diagnosis code is printed on the communication journal.

Transmission report

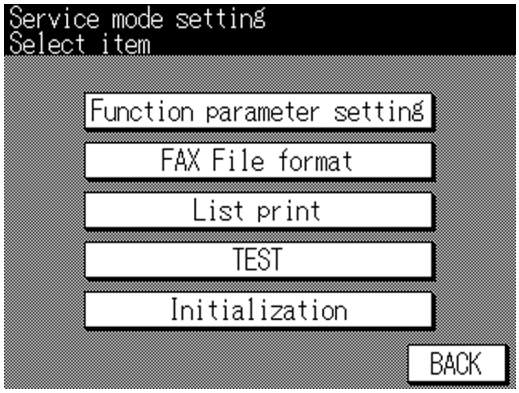
Even if set to “With image” images are not attached at the time of the quick memory transmission and the manual transmission.

3.2.5 System

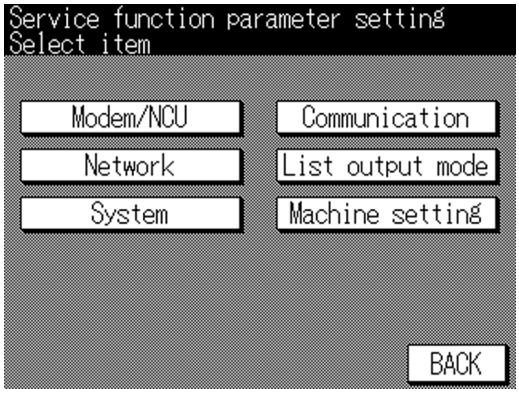
<Operational Procedure>

1. Refer to “3.1.3 How to Enter the Service Mode” to indicate the [Service mode setting] screen.

2. Press the [Function parameter setting] key.



3. Press the [System] key.



4. Select a parameter by pressing the [▲] key / [▼] key.

   Supplement: Press the [▼] key to display the next parameter. Press the [▲] key to return to the previous parameter.

5. Press the [EDIT] key until the set value you would like to select.

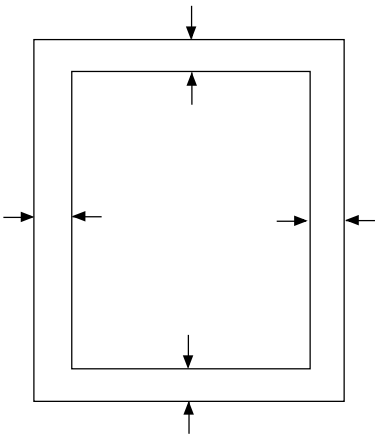
6. Press the [BACK] key.

Parameter	Set Value	Factory-shipped Default Setting	Reference
Fame erasure HP	5,10,15[mm]	5[mm]	Yes
Book mode page order	Tx L to R / Tx R to L	Tx L to R	Yes
Auto rotation Tx(B5R)	ON / OFF	OFF	Yes
Auto rotation Tx(LT)	ON / OFF	ON	Yes
Auto rotation Tx(A4)	ON / OFF	ON	Yes
No. of redials (error)	0 to 7[times]	3	Yes
Error page re-send mode	All pages / Error page	Error page	Yes
Fax board watch dog	ON / OFF	ON	Yes
Original scan mode	Normal / Non standard	Non standard	Yes
RCV/Print STOP	Valid / Not valid	Valid	Yes
Report auto output STOP	Valid / Not valid	Valid	Yes
Fax BOOT rewrite on ISW	ON / OFF	OFF	Yes
Error code display time	Hold / 10 to 250[sec] (in steps of 10 sec)	20[sec]	Yes
Tx without Key counter	Valid / Not valid	Not valid	Yes
PRINT W/O key counter	Valid / Not valid	Not valid	Yes
Confidential com	ON / OFF	ON	Yes
Relay communication	ON / OFF	ON	Yes
Closed area Rx	ON / OFF	ON	Yes
Dial IN	ON / OFF	ON	Yes
Remote Rx	ON / OFF	ON	Yes
Number display	ON / OFF	ON	Yes
Compulsory mem	ON / OFF	OFF	Yes
File Re-Tx	ON / OFF	ON	Yes
Bundled Tx	ON / OFF	ON	Yes
Communication w/o BOX	Normal / Error	Error	Yes

■Detailed Explanation

Frame erasure HP

- Frame erasure size at scanning
- Head, bottom, left and right are of the same



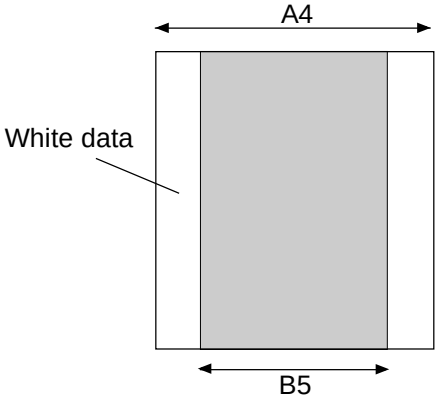
- Erases the outer lines to prevent black lines from appearing. Effective in the book transmission.

Book mode page order

- Scanning order at transmission.
- It is required to change the scanning order in the form of a book.

Auto rotation Tx (B5R)

- “ON”: Transmits B5R in the B4 width.
- “OFF”: Transmits B5R in the A4 width.



Auto rotation Tx (LT/A4)

- “ON”: Transmits in the A4 width.
- “OFF”: Transmits in the A3 width.

No. of redials (error)

Counted as a busy redial when the error page redial is busy.

Error page resend mode

- “All pages”: All pages are resent.
- “Error page”: From an error page are resent.

Fax board watch dog

- Watch dog by using CPU of the Fax board
- “ON”: Reset when hung up.
- “OFF”: Keeps being hung up.
- Normally you do not need to change the setting.

Original scan mode

- Default setting of the user menu

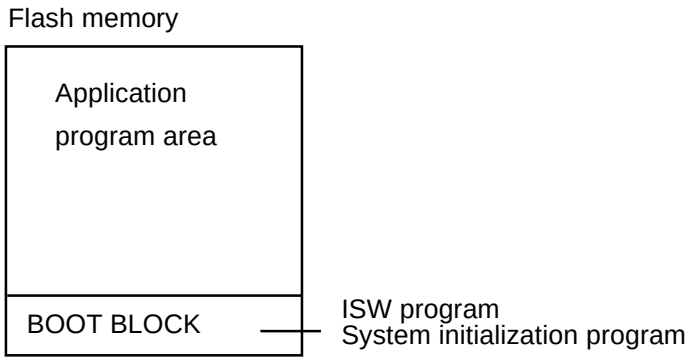
RCV/Print STOP

- Printing: The present page is printed and the printing of next page or later are stopped.
- Receiving: Results in communication error.

Report auto output STOP

- Printing: The present page is printed and the printing of next page or later are stopped.

Fax BOOT rewrite on ISW



- “ON”: Required when a BOOT BLOCK program is upgraded or a hardware is changed.

Error code display time

- The time communication error is displayed.

Tx without key counter

- Default is “Not valid.” When set to “Valid,” the following functions become effective without key counters.
  -Transmission
  -Polling reception
  -Manual reception

PRINT W/O key counter

- Default is “Not valid.” When set to “Valid,” reception and printing becom possible without key counter.

Confidential com.

- Menu display for confidential communication by using the confidential BOX with the F-code.

Relay communication

- Menu display for relay communication by using the confidential BOX with the F-code.

Closed area Rx

- Menu display for closed reception by using F-code for Junk FAXes.

Dial-in (Japan only)

- At the time of reception, the informed dial-in number is received and the FAX numbers and the telephone numbers registered in the key operator mode are compared with the dial-in number. If it is the same as the FAX number, it is automatically received.
  When it conforms with the Telephone number, it is automatically received.
- Combined use with the number display and TEL/FAX automatic switching is possible.
- Compliant to the modem dial-in service provided by NTT only.

Remote Rx

- ON/OFF selection becomes valid for the remote reception function.
- The function to receive FAX using external telephone located away from the machine. Received and directed in 2-digit PB signals.

Number display (Japan only)

- When set to “ON,” the number display function becomes effective.

Compalsory mem.

- ON/OFF selection becomes valid for the forced memory reception.

File Re-Tx (Restored transmmision)

- ON/OFF selection becomes valid for the restore transmission.

Bundled Tx (Instant batch transmission)

- ON/OFF selection becomes valid for the instant batch transmission.

Communication W/O BOX

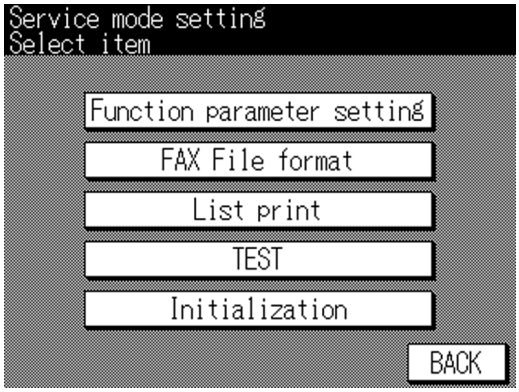
- An operation is selected at reception before BOX is not appointed.
  Ex. Confidential communication documents are received and printed even there is no confidential box.

3.2.6 Machine Setting

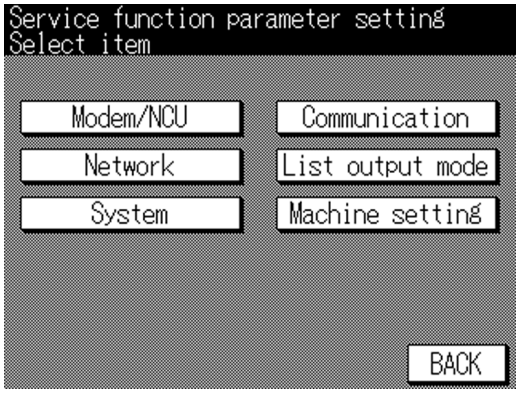
<Operational Procedure>

1. Refer to “3.1.3 How to Enter the Service Mode” to indicate the [Service mode setting] screen.

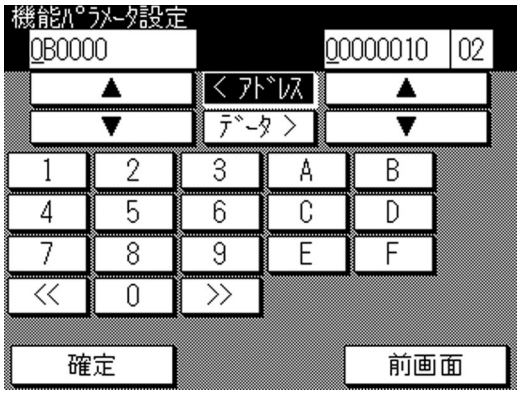
2. Press the [Function parameter setting] key.



3. Press the [Machine setting] key.



4. Select the address. Then, press the [▲] key / [▼] key to increase or decrease the address, or enter a value using hexa-decimal number.



5. Next, select the data. Then, press the [▲] key / [▼] key to increase or decrease the value, or enter a value using binary numbers.

6. When the address and the value are correct, press the [confirm] key.

7. After the settings have been completed, press the [RETURN] key.

Note: Refer to Appendix 2 for the list of address parametors.

3.3 List Print

The following lists can be output.

- Service-use parameter list

  The setting status of the machine is output.

- Protocol trace list

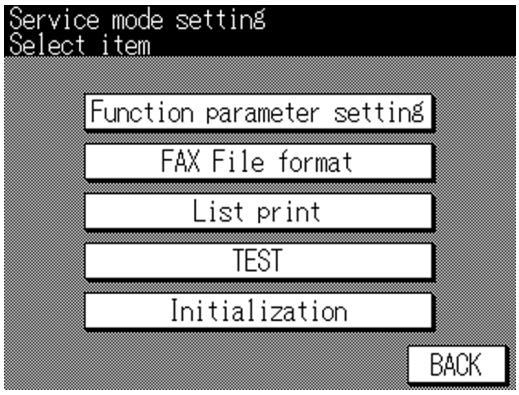
  The facsimile protocol of the communication which was executed previously is output

  Supplement: This list can be output from the user mode. This is used to direct users to output the [Protocol trace list] and perform the FAX communication when users report any communication errors to the technical support center on the phone, etc.

<Operational Procedure>

1. Refer to “3.1.3 How to Enter the Service Mode” to indicate the [Service mode setting] screen.

2. Press the [List print] key.



3. Press the [Service-use parameter list] key or the [Protocol trace list] key , then press the [PRINT] key. The selected list is printed.

Service-use parameter list example

Service-use parameter list P.1

2000/01/20 17:57
26NE00001
TC:5621
ROM Ver.00 001f

Modem/NCU

Item	Setting	Item	Setting
V34send max.bit speed	33600 bps	V34 Rx max.bit speed	33600 bps
V34max.SYMB speed	3429 SYMB	V34control CH speed	1200 SYMB
V34SYMB criterion (S/N)	0 dB	V34SYMB select(Distort)	0 dB
V34 main CH speed	0 dB		
V17 send max.speed	V17-14400	V17 Rx max.speed	V17-14400
PIX TxATT	-10 dBm	TONE/protocol TxATT	-10 dBm
CED/ANSam TxATT	-10 dBm	CD/SED ON level	-48 dBm
DTMF TxATT	-8 dB	DTMF H-L difference	2.0 dB
Tx cable EQL	0 dB	Rx cable EQL	0 dB
Dial In	ON	Remote Rx	ON

Communication

Item	Setting	Item	Setting
V8/V34 protocol	ON		
Fax KRDS protocol	OFF	V17 EP TONE	ON
V29 EP TONE	OFF	T1 TIMER	35 sec
Int'l com function	ON	V34 Int'l com speed	28800 bps
V17 Int'l com speed	7200 bps	V29 Int'l com speed	4800 bps
DIS for Int'l com	1	ECM function	ON
Frame size on ECM send	256	Coding ability	MH/MR/MMR
ANSam send time	4.0 sec	CED-DIS DELAY TIMER	80 ms
DCS-PIX DELAY TIMER	80 ms	PIX-PMC DELAY TIMER	80 ms
EOL-EOL TIMER	13.0 sec	CFR-PIX WAIT TIMER	6.0 sec
ECM-PIX WAIT TIMER	5.5 sec	JM WAIT TIMER	9 .0 sec
V17 Selection mode "-"	OFF		
Confidential com.	ON	Relay communication	ON
Closed area Rx	ON		

Network

Item	Setting	Item	Setting
RCV signal detect mode	Number	RCV signal detect time	6 sec
Pause time	1 sec	Response waiting time	55 sec
DC-LOOP check	OFF	Busy tone detection	ON
No. of busy tones	2	1300 Hz detection	ON
Pseudo RBT send level	-10 dBm	Pseudo RBT cadence	Japan
Min.RING OFF time	200 ms		

List output mode

Item	Setting	Item	Setting
Diag. code journal	OFF	Transmission report	W/O image
Protocol auto print	OFF		

System

Item	Setting	Item	Setting
Frame erasure HP	5 mm	Book mode page order	Tx L to R
Auto rotation Tx(B5R)	OFF	Auto rotation Tx(LT)	ON
Auto rotation Tx(A4)	ON		
No. of redials(error)	3	Error page re-send mode	Error page
Fax board watch dog	ON	Original scan mode	Non stndard
RCV/Print STOP	Valid	Report auto output STOP	Valid
Fax BOOT rewrite on ISW	OFF	Error code display time	20 sec
Tx without key counter	Not valid		
Number display	ON	Compulsory mem.	ON
File Re-Tx	ON	Bundled Tx	ON
		Communication W/O Box	Normal

FAX File format

Item	Setting	Item	Setting
Fax file size	2 MB		

Protocol trace list sample

```
                                    Protocol trace list                    P1.
System cROM Ver.00 001f 0116 Fax conROM Ver.OA                  2000/01/21
                                                                26NE00001
T                                                                TC:13623

T:CNG
T:CNG
T:CNG
R:ANSam
R:NSF     FF 03 20 00 00 11 80 00 8A 48 00 55 00 80 80 80  .. .....H.U....
          06 01 02 01 01                                   .....
R:CSI     FF 03 40 35 38 32 39 20 30 39 20 36 32 34 31 38  ..@5829 09 62418
          20 20 20 20 20 20 20
R:DIS     FF 13 80 20 EE AA C4 80 95 80 80 80 20           ... ........
T:TSI     FF 03 43 20 20 20 20 20 20 20 20 20 20 20 20 20  ..C
          20 20 20 20 20 20 20
T:DCS     FF 13 83 00 82 FA 44                             ......D
          HR=R8  VR=3.85  MST=0  OCD=MMR    ECM=ON(256)  WD=A3
R:CFR     FF 13 84                                         ...
T:PIX     V.34-33600bps
T:PPS-NULL FF 13 BF 00 00 00 FF                            .......
R:MCF     FF 13 8C                                         ...
T:PIX     V.34-33600bps
T:PPS-MPS FF 13 BF 4F 00 01 7B                             ...0..{
R:MCF     FF 13 8C                                         ...
T:PIX     V.34-33600bps
T:PPS-NULL FF 13 BF 00 01 00 FF                            .......
R:MCF     FF 13 8C                                         ...
T:PIX     V.34-33600bps
T:PPS-EOP FF 13 BF 2F 01 01 41                             .../..A
R:MCF     FF 13 8C                                         ...
T:DCN     FF 13 FB                                         ...
```

3.4 FAX Counter on the Machine Management List

Refer to the service handbook of the Copier for the output procedure (36 modes).

Comm Count

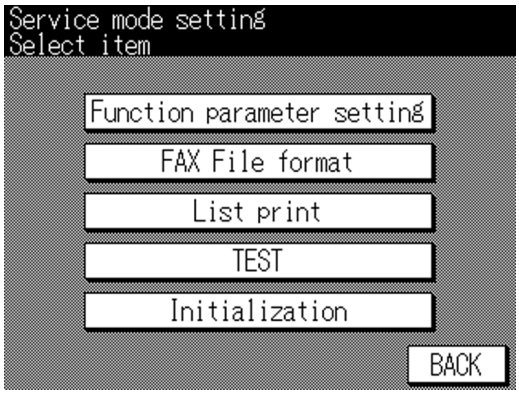
Item	TOTAL COUNT	-
FAX Tx count	84	-
FAX Tx page count	95	-
FAX Rx count	51	-
FAX Rx page count	59	-

3.5 FAX File Format

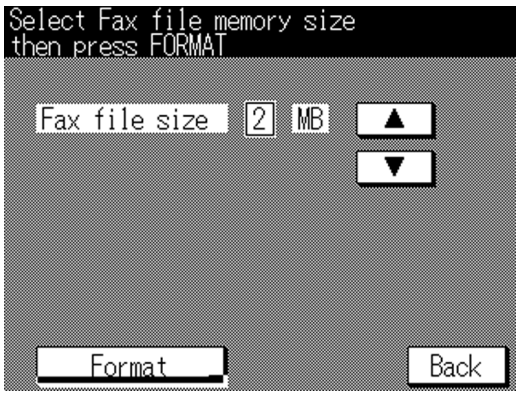
- Fax memory size and format in the E-RDH memory

<Operational Procedure>

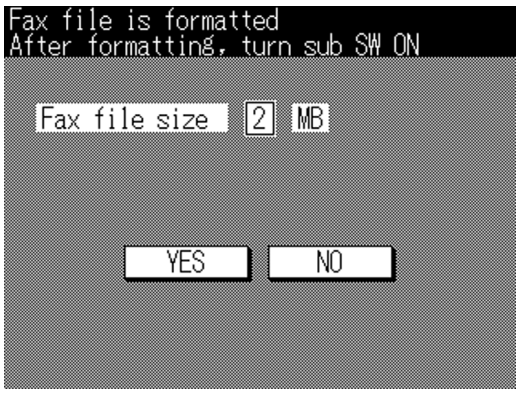
1. Refer to “3.1.3 How to Enter the Service Mode” to indicate the [Service mode setting] screen.
2. Press the [FAX File format] key.



3. Select the Fax file size and press [Format] key.



4. In case of file format, press the [YES] key.



- When the format is executed and completed, the system is restarted.
- Keep in mind that all files (files for sending / files for printing) are erased.

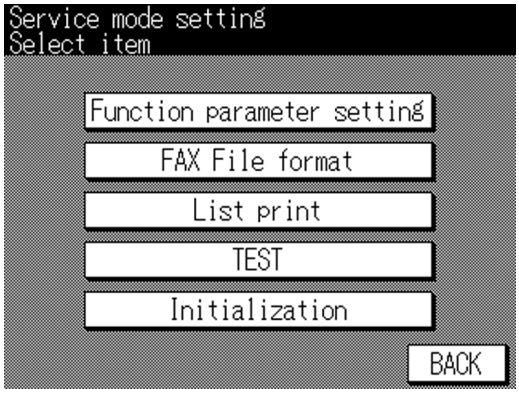
3.6 Initialization

The following data can be initialized. Select data you would like to initialize and press the [OK] key.

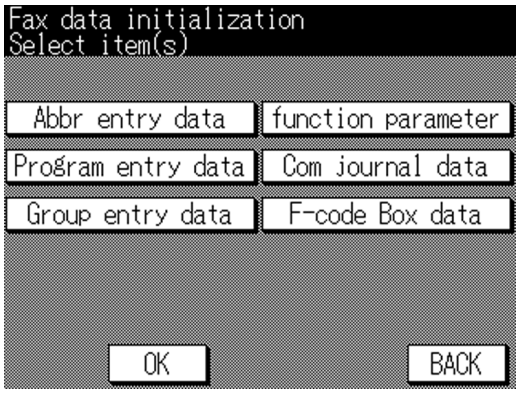
- Abbr entry data ..... All abbreviated dial data is deleted.
- Function parameter ..... Function settings are initialized to the factory-shipped settings.
- Program entry data ..... All program dial registration data is deleted.
- Com journal data ..... All communication journal data is deleted.
- Group entry data ..... All group dial registration data is deleted.
- F-code BOX data ..... All F-code BOX data is deleted.

<Operational Procedure>

1. Refer to “3.1.3 How to Enter the Service Mode” to indicate the [Service mode setting] screen.
2. Press the [Initialization] key.



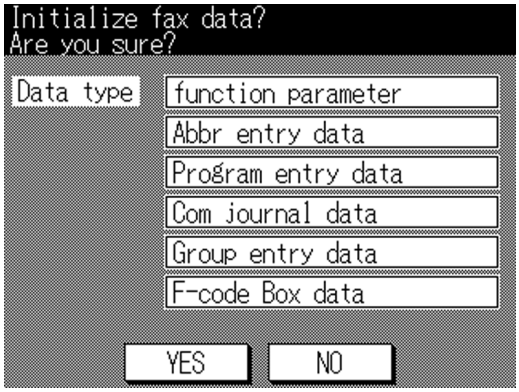
3. Select the category of data you would like to initialize and press the [OK] key.



Supplement: More than one item can be selected.

4. Confirm the shown data category and press the [YES] key.

The selected data is initialized.



4

Test Mode

HOME

4.1 Outline of the Test Mode

4.1.1 Service Mode and Test Mode

The service mode and the test mode are provided in this machine for the purpose of the following operation.

- In order to deal with customers' claims after installation, setting status and operations of devices are checked and operational conditions are changed for analyzing troubles.

Although you can enter both the service mode and the test mode in the same operational procedure, this manual provides “3. Service Mode” to explain the service mode for your easy understanding.

4.1.2 Test Mode Menu Tree

The test mode include the following three menus, each of which includes sub menus.

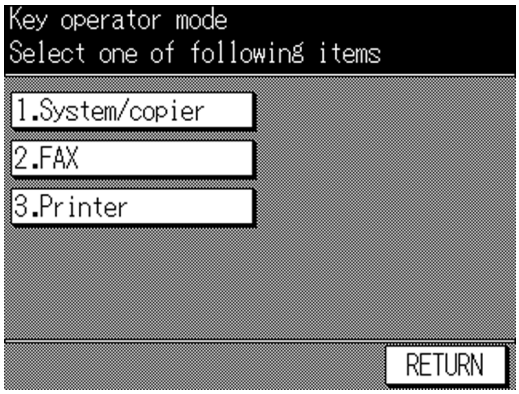
Supplement: See “2.2.2 Menu for Services” for details of menu trees.

- Signal sending test
- Signal receiving test
- NCU test

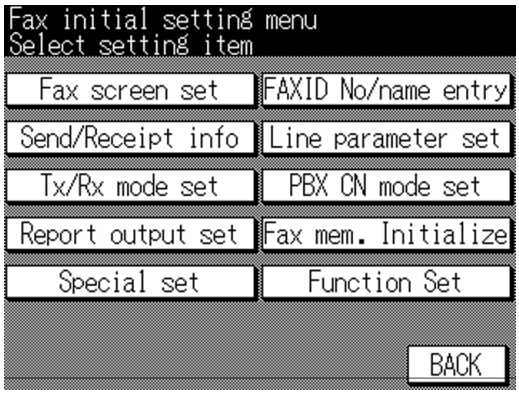
4.1.3 How to Enter the Test Mode

“Operational Procedure”

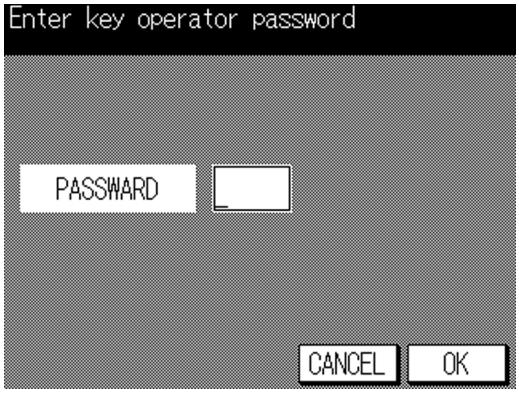
1. Turn OFF the power switch.
2. While holding down the [HELP] button of the operation panel, turn ON the power switch.
3. Press the [2. FAX] key.



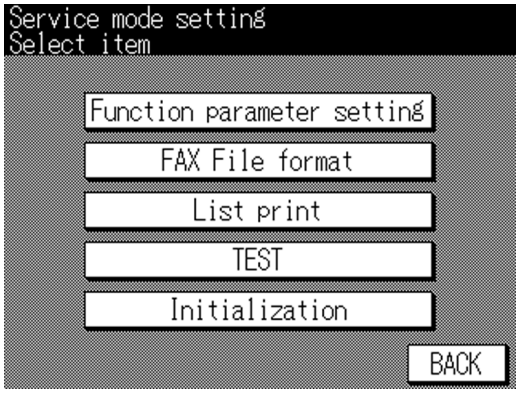
4. Press the [Special set] key.



5. Enter the secret password (9272) for service in the box of [PASSWORD],then [OK]. The [Service mode setting] screen appears.



6. Press the [TEST] key.

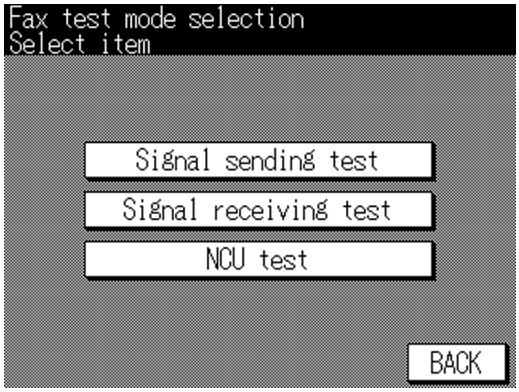


4.2 Signal Sending Test

Image information signals, control signals and DTMF can be individually output. Additionally, signal sounds can be monitored by monitor speaker.

<Operational Procedure>

1. Press [Signal sending test].



2. Select a test item by pressing the [▲] key / [▼] key.

   Supplement: Press the [▼] key to display the next test item. Press the [▲] key to return to the previous test item.

3. Press the [EDIT] key to select the parameter you would like to test.

4. Press the [START] key.

   Note: In order to move to another test, select the next test item after pressing the [Stop] key.

Contents of Test	Parameter	Factory-shipped Default Setting
V34 main CH send test	33600 / 31200 / 28800 / 26400 / 24000 / 21600 / 19200 / 16800 / 14400 / 12000 / 9600 / 7200 / 4800 / 2400[bps]	33600[bps]
V34 contorl CH sigl.send	CTL CH / INFOc / INFOa / ToneB /ToneA	CTL CH
V8 sigl.send test	CM / JM	CM
V17 sigl.send test	14400 / 12000 / 9600 / 7200[bps]	14400[bps]
V29 sigl.send test	9600 / 7200[bps]	9600[bps]
V27 ter sigl.send test	4800 / 2400[bps]	4800[bps]
V21 sigl.send test	-	-
PB sigl.send test	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / * / # / A / B / C / D	0
DP sigl.send test	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	0
Tone send(Pre-select)	1100 / 1300 / 1650 / 2100 [Hz]	1650[Hz]
Tone send(100 HZ step)	200 to 4000[Hz] (In steps of 100Hz)	200[Hz]
PB(High)tone send test	1209 / 1336 / 1477 / 1633 [Hz]	1477[Hz]
PB(Low)tone send test	697 / 770 / 852 / 941[Hz]	697[Hz]
Pseudo RBT send test	-	-

■ Detailed Explanation

Signal sending test

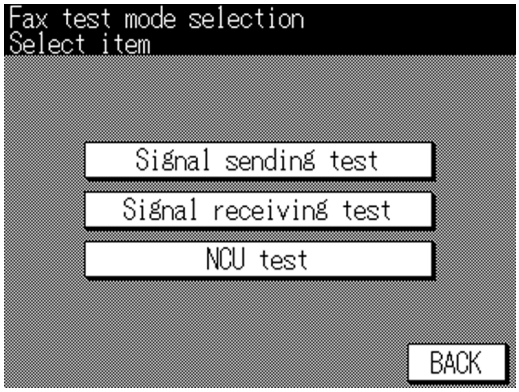
Signal is output from pressing [START] to pressing [STOP].

4.3 Signal Receiving Test

Two machines are used for this test. Signal sounds can be monitored by using the monitor speaker.

<Operational Procedure>

1. Press [Signal receiving test].



2. Select a test item by pressing the [▲] key / [▼] key.

3. Press the [EDIT] key to select the parameter you would like to test.

4. Press the [START] key.

Note: In order to move to another test, select the next test item after pressing the [STOP] key.

Contents of Test	Parameter	Factory-shipped Default Setting
V17 sigl .receive	14400 / 12000 / 9600 / 7200[bps]	14400[bps]
V29 sigl. receive	9600 / 7200[bps]	9600[bps]
V27 ter sigl .receive	4800 / 2400[bps]	4800[bps]
V21 sigl. receive	-	-
PB sigl.receive	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / * / # / A / B / C / D	0
Tone receive(Pre-select)	1100 / 1300 / 2100	1100[Hz]
Hi-Z trans sigl receive	-	-

Supplement: The status of testing or results of tests are shown in the title line as follows

RCV : Waiting signals

OK/NG: Results of signal reception

■ Detailed Explanation

Hi-Z trans sigl receive

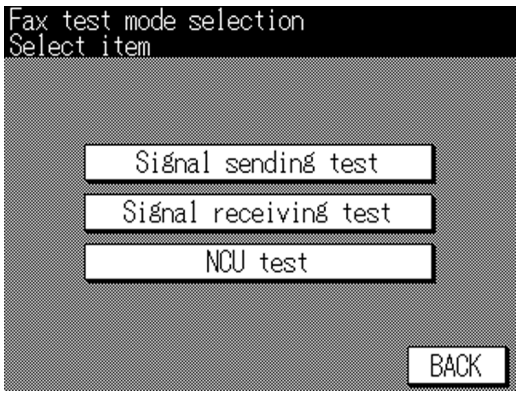
1100Hz only (No 1300Hz)

NOTE: The receiving test does not include the V.34 signal.

4.4 NCU Test

<Operational Procedure>

1. Press [NCU test].



2. Select a test item by pressing the [▲] key / [▼] key.

3. Press the [START] key.

Note: In order to move to another test, select the next test item after pressing the [STOP] key.

Supplement:

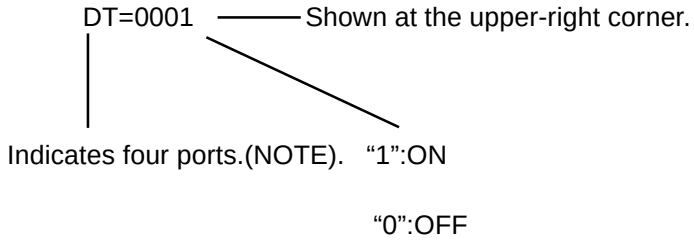
- When CML / PULSE / EARTH / LOOP relay test is selected and the [START] is pressed, ON is displayed in the parameter and relay is turned to ON. When [STOP] is pressed, OFF is displayed and relay is turned OFF.
- When the DC-LOOP detection test is selected and [START] is pressed, DT=0001 is shown in the title row in case of detecting the DC-LOOP. If not detected, DT=0000 is displayed.
- When the speaker test is selected and [START] is pressed, On is displayed in the parameter and the speaker is turned ON. When [STOP] is pressed, OFF is displayed and the speaker is turned OFF.

Contents of Test	Relay to Be Tested
CML relay test	RL1
PULSE relay test	RL5
EARTH relay test	RL4
LOOP relay test	RL3
CD-LOOP detect test	
Speaker test	

- RL4 is a relay to determine whether DC-LOOP of the external telephone is detected or not. (Japan)
- The XDCLP signal detects the off-hook of the external telephone. (Japan)

■ Detailed Explanation

DC-LOOP detect test



5

Troubleshooting

HOME

5.1 Error Codes

Code No.	Category	Contents of Error	Remarks
F86-00	System and soft error		Not used
F86-01			Not used
F86-02		Checksum error	F error (total control)
F86-03		Hard error	F error (total control)
F86-04		Interface error	F error (total control)
F86-05			Not used
F86-06			Not used
F86-07			Not used
F86-08			Not used
F86-09			Not used
E86-10			Not used
E86-11			Not used
E86-12			Not used
E86-13			Not used
E86-14			Not used
E86-15			Not used
E86-16			Not used
E86-17			Not used
E86-18			Not used
E86-19			Not used
E86-20		JC soft error	JC
E86-21			Not used
E86-22		Device error (GA LOCAL SRAM)	JC (only at the test mode)
E86-23		Device error (DRAM)	JC (only at the test mode)
E86-24			Not used
E86-25		Device error (GA)	JC (only at the test mode)
E86-26		Timeout error due to no responses from DC at the time of a break process	JC
E86-27		Timeout error due to no responses from DC at the time of a break process	JC
E86-28		Timeout error due to no responses from DC at the time of a break process	JC
E86-29			Not used
E86-30	MIF driver error	Driver soft error	MIF
E86-31	MIF driver error	Error of the receiving frame length from the main side	MIF
E86-32	MIF driver error	Error of the receiving frame header from the main side	MIF

Code No.	Category	Contents of Error	Remarks
E86-33	MIF driver error	232C I/F sequence error	MIF
E86-34	MIF driver error	DPRAM I/F sequence error	MIF
E86-35	MIF driver error	DPRAM CTL/STS register abnormality	MIF
E86-36	MIF driver error	ACK waiting timeout	MIF
E86-37	MIF driver error	DPRAM RESET reception	MIF
E86-38			Not used
E86-39			Not used
E86-40	MIF soft error	MSG I/F error with JC	MIF
E86-41	MIF soft error	I/F error with driver	MIF
E86-42	I/F error with main	Undefined command reception	MIF
E86-43	I/F error with main	Command frame length error	MIF
E86-44	I/F error with main	Command parameter length error	MIF
E86-45	I/F error with main	Undefined parameter	MIF
E86-46	I/F error with main	Command/response sequence error	MIF
E86-47			Not used
E86-48			Not used
E86-49			Not used
E86-50			Not used
E86-51			Not used
E86-52			Not used
E86-53			Not used
E86-54			Not used
E86-55			Not used
E86-56			Not used
E86-57			Not used
E86-58			Not used
E86-59			Not used
E86-60			Not used
E86-61			Not used
E86-62			Not used
E86-63			Not used
E86-64			Not used
E86-65			Not used
E86-66			Not used

Code No.	Category	Contents of Error	Remarks
E86-67			Not used
E86-68			Not used
E86-69			Not used
E86-70			Not used
E86-71			Not used
E86-72			Not used
E86-73			Not used
E86-74			Not used
E86-75			Not used
E86-76			Not used
E86-77			Not used
E86-78			Not used
E86-79			Not used
E86-80			Not used
E86-81			Not used
E86-82			Not used
E86-83			Not used
E86-84			Not used
E86-85		Insufficient control memory (for communication job)	Total control
E86-86		Insufficient control memory (for print memory)	Total control
E86-87		Insufficient control memory (for scan memory)	Total control
E86-88		Quick sending image object abnormality	Total control
E86-89		FAX board response waiting timeout	Total control
E86-90	File system error	A file system error occurred in the initial condition, but returned to the normal condition by initializing the file.	Total control
E86-91	File system error	File access error (for UI)	Total control
E86-92	File system error	File access error (for job management)	Total control
E86-93	File system error	File access error (for communication job)	Total control
E86-94	File system error	File access error (for communication job and file node /pipe)	Total control
E86-95	File system error	File access error (for print memory)	Total control
E86-96	File system error	File access error (for print memory and file node /pipe)	Total control
E86-97	File system error	File access error (for scan memory)	Total control
E86-98	File system error	File access error (for scan memory and file node /pipe)	Total control
E86-99	File system error		Reservation

Code No.	Category	Contents of Error	Remarks
T00	Sending	Waiting for a response of a remote station(35second)	T1 timeout
T01	Sending	T1 over after the mode has been changed (35 seconds)	T1 timeout
T02	Sending	DCN reception in DIS waiting	
T03	Sending	Unexpected command reception in DIS waiting	
T04			Reserved
T05			Reserved
T06	Sending	DCN reception in CFR/FTT waiting	
T07			Not used
T08	Sending	Training failure at 2400bps	
T09	Sending	No response to DCS	
T10			Reserved
T11	Sending	DCN reception while waiting for post message responses	
T12	Sending	Unexpected command reception while waiting for post message responses	
T13	Sending	No response while waiting for post message responses	
T14			Not used
T15	ECM sending		Reserved
T16			Reserved
T17			Reserved
T18	Sending	No reception ability in a remote station	
T19			Not used
T20			Reserved
T21			Reserved
T22			Reserved
T23			Reserved
T24			Reserved
T25			Reserved
T26			Reserved
T27			Reserved
T28	ECM sending	Timeout by RR/RNR (60 seconds)	T5 timeout
T29			Not used
T30			Not used
T31			Not used
T32	ECM sending	Fall back over by CTC	
T33			Not used
T34			Not used

Code No.	Category	Contents of Error	Remarks
T35	ECM transmission	No responses to RR	
T36	ECM transmission	DCN reception to RR	
T37	Polling transmission		Not used
T38	F code polling tx	SID is received when SEP is received	CC
T39			Reserved
T40	Calling	Software error at calling	
T41			Not used
T42	Sending	RTN/PIN reception	
T43	Sending	Three continuous CRP signal reception	
T44	Sending	Time error between frames at transmission	
T45			Reserved
T46			Reserved
T47			Reserved
T48			Not used
T49			Not used
T50	FAX-KRDS	Host terminal ID inconsistency	S-5C
T51			Not used
T52			Reserved
T53			Reserved
T54			Not used
T55			Not used
T56	BFT transmission		Reserved
T57	BFT transmission		Reserved
T58	Polling transmission	Calling by polling reception, but a remote station does not have polling documents	CC
T59			Reserved
T60	Polling transmission	Received the polling transmission request (DTC), but there are no polling transmission documents	
T61			Reserved
T62	Polling transmission	Box number specified by SEP is not valid.	Reserved
T63	Polling transmission		
T64			Reserved
T65	Polling transmission		Reserved
T66			Reserved
T67			Reserved
T68	SEP polling		Reserved
T69	SUB transmission		Reserved

Code No.	Category	Contents of Error	Remarks
T70			Reserved
T71			Reserved
T72			Not used
T73	Transmission	Modem response waiting T.0 (60 seconds)	CC
T74	V34	No changes in the V 34 modem status	CC
T75	V34	V34 signal sending error	CC
T76	V34	CS2 is not turned to ON	CC
T77	Transmission	DC middle ware error	DC
T78	Transmission	DC soft ware error	DC
T79	Transmission	JC soft error at transmission	IC
T80	Call control	LOOP current detection NG when CML is turned ON at calling	
T81	Call control	Dial Tone detection NG when CML is turned ON at calling	
T82	Call control	Answer tone (CED/DIS) waiting timeout after dialing at calling	
T83	Call control	Busy tone detection at calling	
T84	Call control	Line dial error	
T85	Call control	Short disconnection was detected after LOOP current detection at calling	
T86	Call control	Dial Tone continues after dialing	
T87			Not used
T88			Not used
T89			Not used
T90			Not used
T91			Not used
T92			Not used
T93			Not used
T94			Not used
T95	Call control	When called, short disconnection of LOOP current was detected during a call	
T96			Not used
T97			Not used
T98			Not used
T99	Call control	Remote stations number is deleted while waiting for abbreviated or one-touch re-dialing (redial / transmission / polling reception)	Generation on the whole control side

Code No.	Category	Contents of Error	Remarks
R00	Reception	DCS was not received within 35 seconds (T1 over)	
R01	Reception	T1 timeout after EOM sending	
R02	Reception	DCN reception in DCS waiting	
R03	Reception	Unexpected command reception in DCS waiting	
R04	Reception	FIF error of DCS	
R05			Reserved
R06	Reception		Reserved
R07	Reception	Image information does not come in image information waiting	
R08	Reception	CD OFF while receiving image information	
R09	Reception	DCN reception in post message waiting	
R10	Reception	Unexpected command reception in post message waiting	
R11	Reception	Command was not received which waiting for post message	
R12	Reception	Timeout during EOL-EOL	
R13			Reserved
R14			Reserved
R15			Reserved
R16			Reserved
R17			Reserved
R18			Not used
R19	Reception		Reserved
R20	CUG reception		Reserved
R21	CUG reception		Reserved
R22	CUG reception		Reserved
R23			Reserved
R24	ECM reception	RR-RNR repeats for 2 minutes	
R25	ECM reception	Command was not received while waiting for responses to RNR	
R26	ECM reception	Unexpected command was received while waiting for responses to RNR	
R27	ECM reception	DCN reception while waiting for responses to RNR	
R28	ECM reception		Reserved
R29	ECM reception	Timeout (35 seconds) between frames occurred	
R30			Reserved
R31			Reserved
R32			Not used
R33	Reception	DIS reception to DTC (German specifications only)	

Code No.	Category	Contents of Error	Remarks
R34	F code confidential reception	PWD was received when SUB was received.	CC
R35			
R36			
R37	V34	CS2 is not turned to ON.	CC
R38	V34	No change in V34 modem and status	CC
R39			Not used
R40	When received	Soft error when called	CC
R41			Not used
R42			Not used
R43			Not used
R44			Not used
R45	Reception	Phase C timeout (NonECM reception only)	
R46	Reception		Reserved
R47			Not used
R48	Reception		Not used
R49	Reception	DCN reception while waiting for image information	
R50	Reception	No. of error lines exceeds.	DC
R51	Reception		Reserved
R52	Reception		Reserved
R53	Reception		Reserved
R54	Reception		Reserved
R55	Remote OMR		Reserved
R56	Reception		Reserved
R57	Remote diagnosis		Reserved
R58	Remote diagnosis		Reserved
R59	Remote diagnosis		Reserved
R60	Reception	Reception image error (RTN/PIN sending)	
R61	Reception		Not used
R62	Reception		Not used
R63	Reception	Three continuous CRP signal reception	
R64	Reception		Not used
R65	Reception		Not used
R66	SEP polling	SEP polling transmission request was received without SEP polling transmission ability	CC
R67	SUB reception	SUB was directed without SUB reception ability	CC

Code No.	Category	Contents of Error	Remarks
R68			Not used
R69	ECM reception	Communications are cut when EOR is received.	CC
R70	ECM reception	Decode error occured in ECM	DC
R71	Reception	RTC detection error (No. of EOL is smaller than FP.)	DC
R72	Reception	Received documents of 840mm or larger	DC
R73	Reception	Modem response waiting T.0 (60 seconds)	DC
R74	Reception	Reception byte size error	Not used
R75	V34	V34 signal sending error	
R76	V34	Unexpected command was received in V.34 mode phase C reception	
R77	Reception	DC middle ware error	DC
R78	Reception	DC software error	DC
R79	Reception	JC soft error during reception	JC
R80	FAX-KRDS	Serial No. inconsistency at reception from a host	S-JC
R81	FAX-KRDS	Line was cut by writing direction from a host during copying	S-JC
R82	FAX-KRDS	Line was cut by receiving FAX-KRDS direction due to inability of FAX-KRDS	S-JC
R83	FAX-KRDS	Unauthorized command from a host	S-JC
R84	FAX-KRDS	Writing error to nonvolatile	
R85			Not used
R86			Not used
R87			Not used
R88			Not used
R89			Not used
R90			Reserved
R91			Reserved
R92			Reserved
R93			Not used
R94			Not used
R95			Not used
R96	F-code reception	Confidential box number specified by SUB is not valid.	
R97			Not used
R98			Not used
R99	Others	Reception command was received from the whole control side before reception signals were detected.	

5.2 Diagnostic Codes

5.2.1 Outline

The diagnostic code is a 17-digit hexadecimal code indicating a communication conditions and status.

The diagnostic code is printed on the communication journal.

The purpose of the diagnostic code is to obtain detailed information of communication results and conditions so as to analyze communication troubles.

5.2.2 Explanation

XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)

(1) Types of call out / called

(2) Types of sending and receiving

(3) Application sending mode

(4) One-time communication parameter

(5) Box No.(Upper digits)

(6) Box No.(Lower digits)

(7) Horizontal RES

(8) Vertical RES

(9) Coding

(10) Document width

(11) Document length

(12) Communication speed (SPEED0)

(13) Communication speed (SPEED1)

(14) Communication speed (SPEED2)

(15) Communication speed (SPEED3)

(16) MSLT

(17) ECM / PIX / BFT protocol command

(18) Remote station coding ability

(19) Remote station ECM/PIX/BFT protocol ability

(1) Types of call out / called

bit7: F network called (Japan)

bit6: PSTN called

bit5: Dial-in (Japan)

bit4: Telephone

bit3: Group

bit2: One-touch dialing

bit1: Abbreviated dialing

bit0: Key pad dialing

(2) Types of sending and receiving

bit7: Sending

bit6: Error page resending

bit5: Forwarding transmission

bit4: Polled transmission

bit3: Receiving

bit2: Recovery transmission

bit1: Called turnaround

bit0: Polling Rx

(3) Application transmission mode

bit7: Mixed size transmission

bit6: Fame erasure transmission

bit5: Book mode transmission

bit4: 2-in-1 transmission

bit3: Original size appointing Tx

bit2: Upside down
bit1: Special scanning (non standerd, Z fold, Long original)
bit0: (Not used)

(4) One-time communication parameter

bit7: Timer Tx

bit6: (Not used)

bit5: KRDS

bit4: PC-Fax transmission (Rx/V2)

bit3: V34 appoint transmission

bit2: F-code transmission

bit1: ECM transmission

bit0: International mode transmission

(5) Box No. (Upper digits)

bit7: (Not used)

bit6: (Not used)

bit5: (Not used)

bit4: (Not used)

bit3-bit0: 1-20, 100-104, 999 Upper (Hex)

(6) Box No. (Lower digits)

bit7-bit0: 1-20, 100-104, 999 Lower (Hex).

(7) Horizontal RES

bit7: 400dpi

bit6: 300dpi

bit5: 200dpi

bit4: (Not used)

bit3: 16 pels/mm

bit2: (Not used)

bit1: 8 pels/mm

bit0: (Not used)

(8) Vertical RES

bit7: 400dpi

bit6: 300dpi

bit5: 200dpi

bit4: 100dpi

bit3: 15.4 1/mm

bit2: (Not used)

bit1: 7.7 1/mm

bit0: 3.85 1/mm

(9) Coding

bit7: (Not used)

bit6: (Not used)

bit5: (JPEG)

bit4: (JBIG)

bit3: MMR

bit2: MR

bit1: MH

bit0: THRU

(10) Document width

bit7: (Not used)

bit6: (Not used)

bit5: (Legal)

bit4: (Letter)

bit3: A3

bit2: B4

bit1: A4

bit0: (Not used)

(11) Document length

bit7: (Not used)

bit6: No limits

bit5: (Legal)

bit4: (Letter)

bit3: (Not used)

bit2: B4

bit1: A4

bit0: (Not used)

(12) Communication speed (SPEED0)

bit7: (Not used)

bit6: (Not used)

bit5: (Not used)

bit4: V29-96

bit3: V29-72

bit2: (Not used)

bit1: V27-48

bit0: V27-24

(13) Communication speed (SPEED1)

bit7: V17-144

bit6: V17-120

bit5: V17-96

bit4: V17-72

bit3: (V33-144)

bit2: (V33-120)

bit1: (V33-96)

bit0: (V33-72)

(14) Communication speed (SPEED2)

bit7: V34-192

bit6: V34-168

bit5: V34-144

bit4: V34-120

bit3: V34-96

bit2: V34-72

bit1: V34-48

bit0: V34-24

(15) Communication speed (SPEED3)

bit7: (Not used)

bit6: (Not used)

bit5: V34-336

bit4: V34-312

bit3: V34-288

bit2: V34-264

bit1: V34-240

bit0: V34-216

(16) MSLT

bit7: (Not used)

bit6: (Not used)

bit5: (Not used)

bit4: (Not used)

bit3 to bit0: MSLT of resolution shown as Vers

(17) ECM / PIX / BFT protocol

bit7: ECM frame size 0: 256/ 1: 64

bit6: ECM

bit5: DIAG (KRDS)

bit4: (BFT)

bit3: (BTM)

bit2: SID

bit1: SEP

bit0: SUB

(18) Remote station coding ability

bit7: (Not used)

bit6: (Not used)

bit5: (JPEG)

bit4: (JBIG)

bit3: MMR

bit2: MR

bit1: MH

bit0: THRU

(19)Remote station ECM/PIX/BFT protocol

bit7: (Not used)

bit6: ECM

bit5: DIAG (KRDS)bit4: (BFT)

bit3: (BTM)

bit2: SID

bit1: SEP

bit0: SUB

Supplement: (Not used) bit is set to 0.

5.3 FAX Board Hardware Self-diagnosis

SRAM / Local SRAM for GA / SDRAM / GA / modem are checked.

(1) Memory check

- Memory is written, read and verified. If no abnormality is found, it is cleared to 0.
- Memory is written, read and verified twice. First, it is checked in AA55 data and then checked in BNT reverse data (55AA).

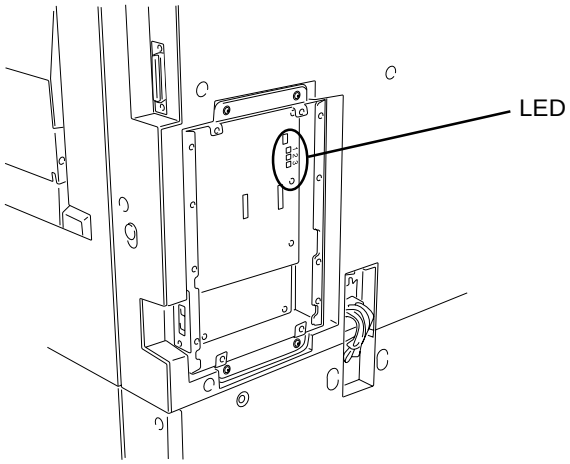
(2) GA check

- The test pattern is in ROM. Whether the result conforms or not is judged by the reduction rate of 50% (Src:32H-WORD and Dst: 16H-WORD).

(3) Modem check

- The modem is initialized to check whether it has been completed normally.

With the FK-101 cover removed, the error status of each device is displayed in LED as follows:



STATUS	LED DISPLAY			REMARKS
	LED3	LED2	LED1	
All LEDs are turned off	○	○	○	CPU or ROM malfunctions.
LED 1 is turned on	○	○	●	SRAM malfunctions.
LED 3 is turned on	●	○	○	LSRAM malfunctions.
LED1 and 2 are turned on	○	●	●	SDRAM malfunctions.
LED 1 and 3 are turned on	●	○	●	GA malfunctions.
LED 2 and 3 are turned on	●	●	○	A modem malfunctions.
LED 1, 2 and 3 are turned on	●	●	●	All devices OK.

● :light on
○ :light off

5.4 Countermeasures in Case of No Error Codes

When no error codes are founds, take the following countermeasures.

(1) When the FK-101 main body is required to be replaced, refer to “6.1 FK-101 Body and Related Items” for replacement.

- Replacement of battery.
- Replacement of control board.
- Replacement of NCU board.

(2) When the one-touch button or speaker is required to be replaced, refer to “ 6.2 One-touch Button and Speaker” for replacement.

- Replacement of one-touch button.
- Replacement of speaker.

6

Replacement Procedure

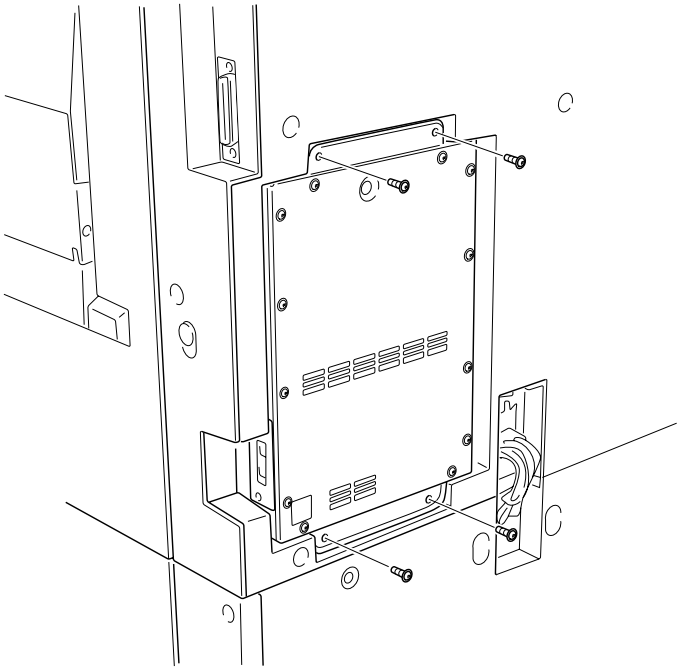
HOME

6.1 FK-101 Body and Related Items

6.1.1 Removal of the FK-101 Body

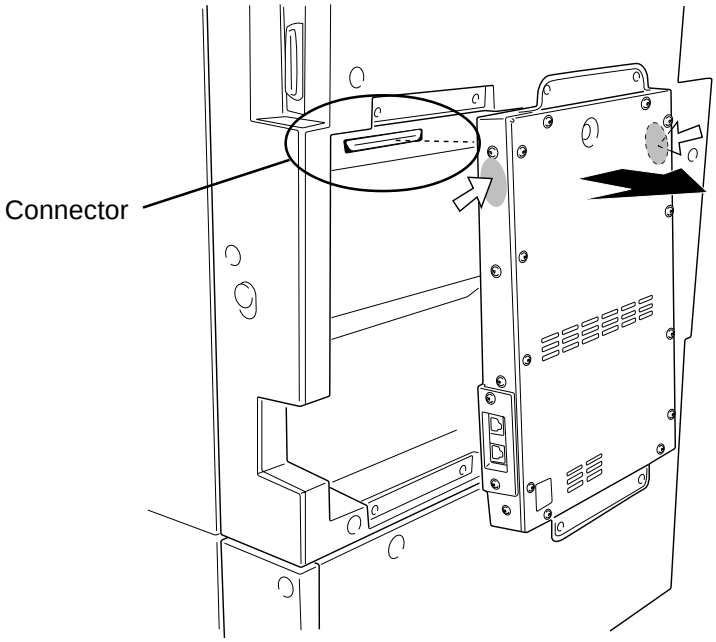
In order to replace each part of the FK-101, remove the FK-101 body in the following order.

1. Remove four screws of the FK-101 from the back side of the body.

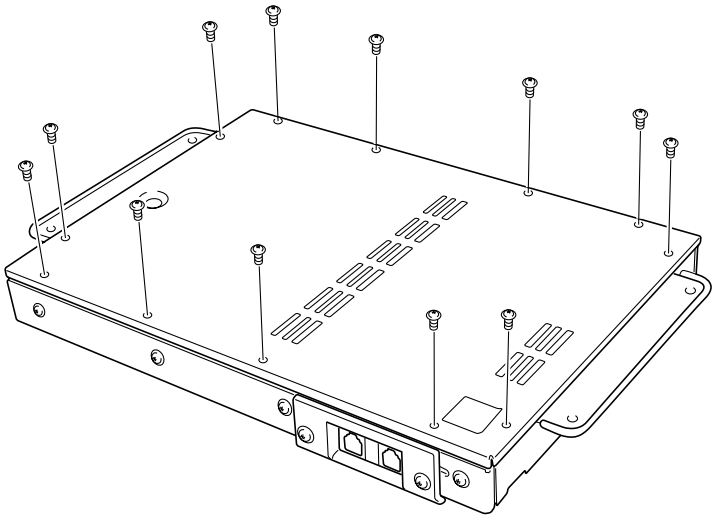


2. Pull the FK-101 body toward you, paying attention to the connector at the upper FK-101 body.

[NOTE] Gently pull the FK101 from the upper part, taking care not to damage the connector.

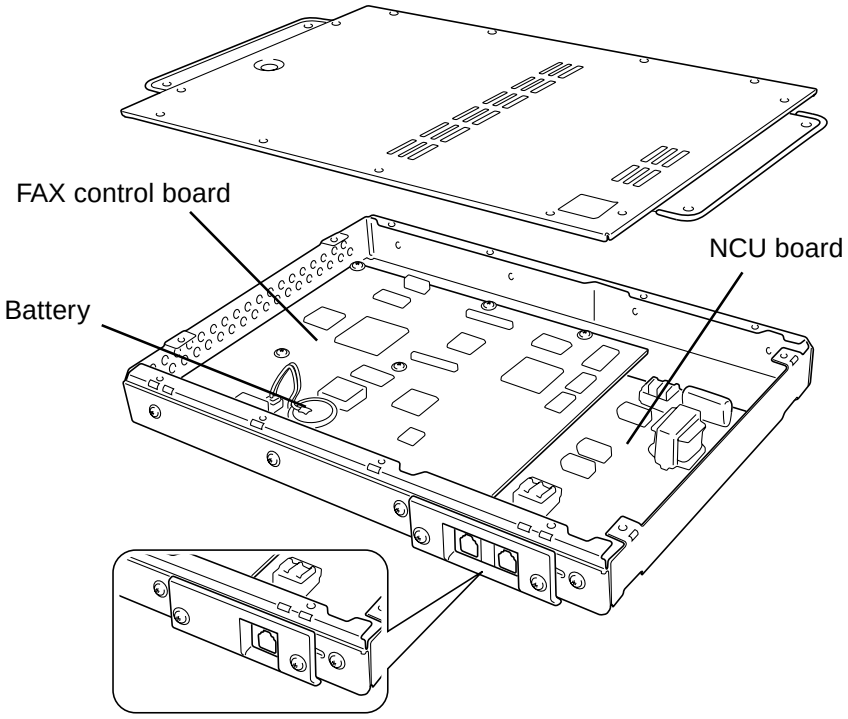


3. Remove the cover of the FK-101 body. (12 screws)



4. The following parts are seen when the cover is removed.

[NOTE] Since the board may be damaged due to static electricity, take a measure against static electricity before replacement.



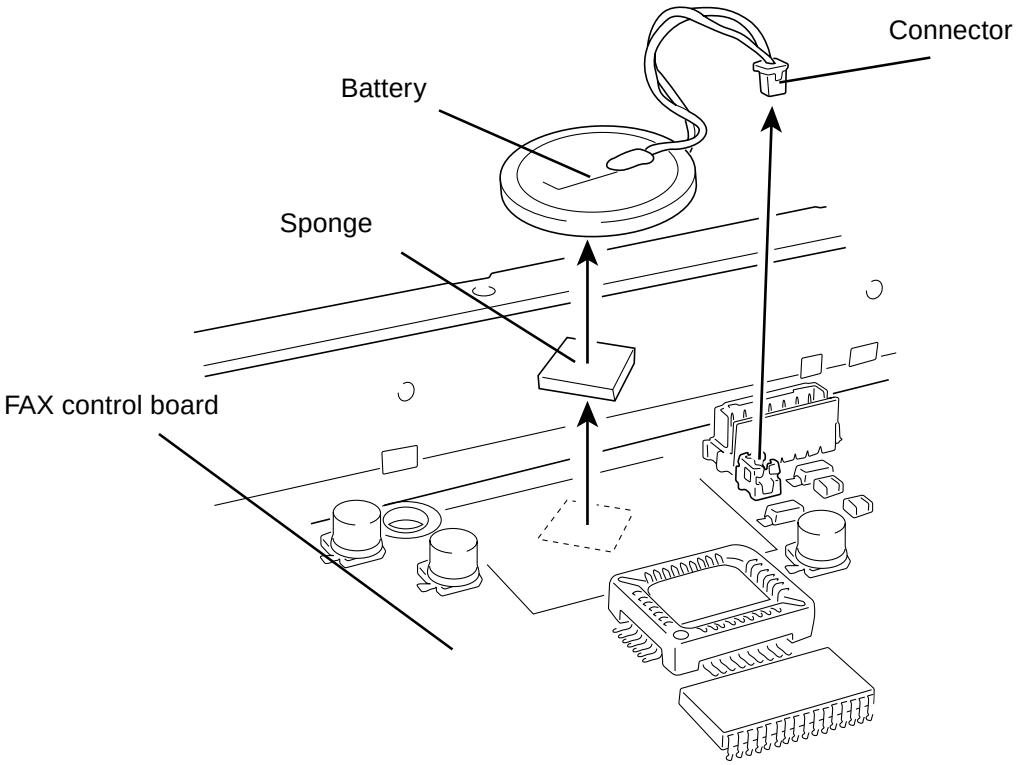
Supplement: There are two kinds of telephone jacks.(country spec)

5. After the replacements, attach the FK-101 body to the machine in the reverse order of the above.

6.1.2 Replacement of Battery

[NOTE] Since the board may be damaged due to static electricity, take a measure against static electricity before replacement. The battery has a charging life of 5000 times, replacement is assumed to be unnecessary.

1. Remove the connector which is connected to the battery.



2. Since the buttery is fixed to the FAX control board by using the double-sided tape and a sponge, replace batteries, taking care of the FAX control board.

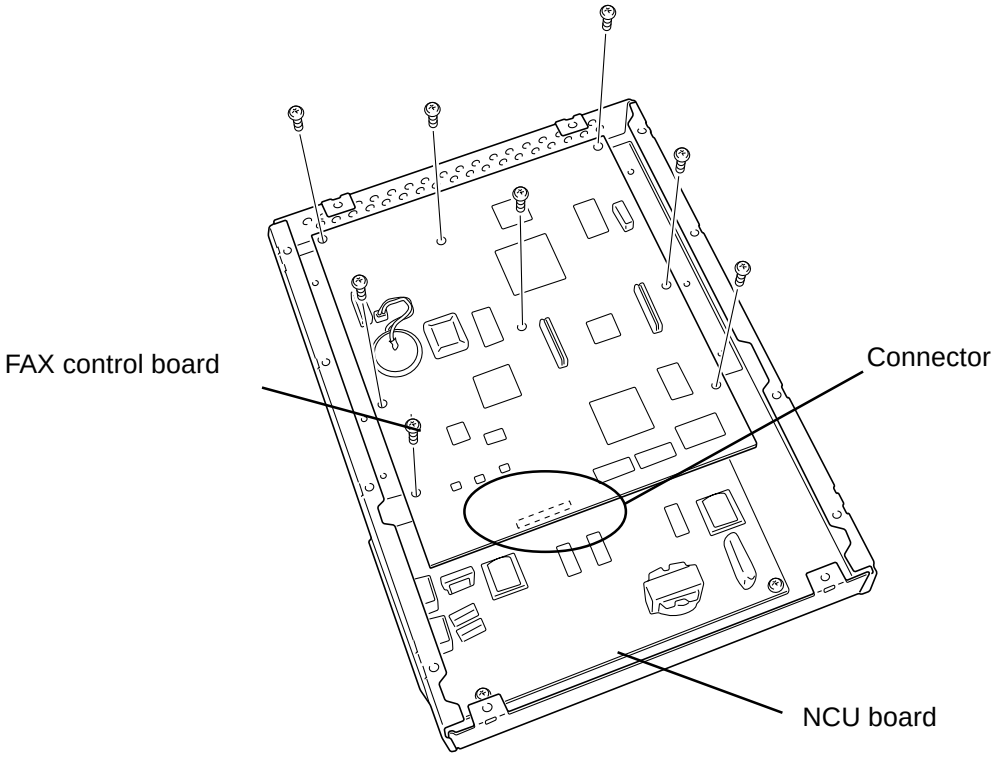
3. Connect the connector in the reverse order of the above.

6.1.3 Replacement of the FAX Control Board

[NOTE] Since the board may be damaged due to static electricity, take a measure against static electricity before replacement.

Since the FAX control board is connected to the NCU board below with a connector, take care not to damage the connector when you remove the board.

1. Remove the FAX control board. (8 screws)



2. Attach a new FAX control board in the reverse order of the above.

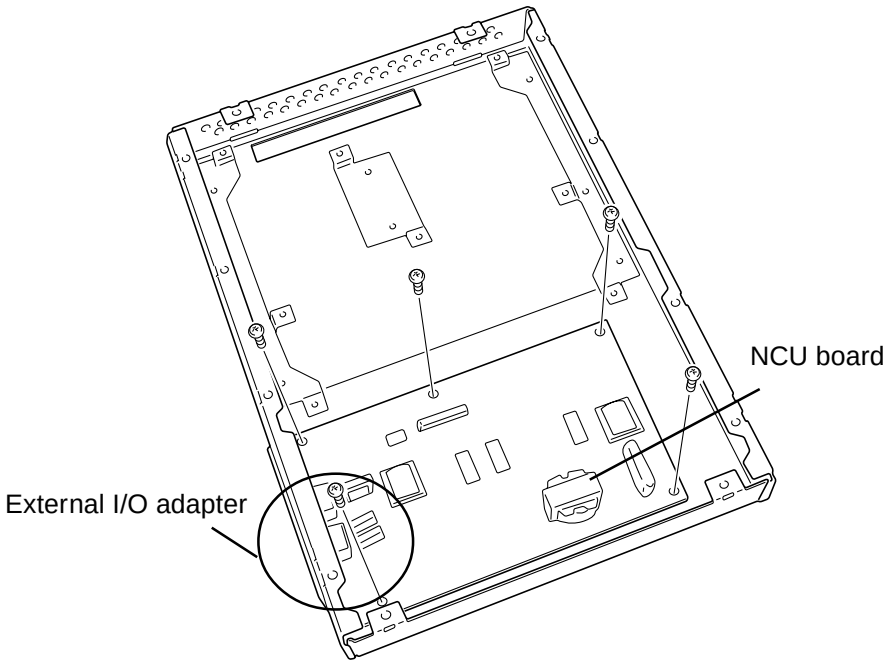
6.1.4 Replacement of the NCU Board

[NOTE] Since the board may be damaged due to static electricity, take a measure against static electricity before replacement.

Since it is required first to remove the FAX control board for replacement of the NCU board, refer to 6.1.3 and remove the FAX control board, taking care of the connector.

Replace the NCU board, taking care not to damage the external I/O adapter which is directly attached to the NCU board.

1. Remove the FAX control board. (5 screw)

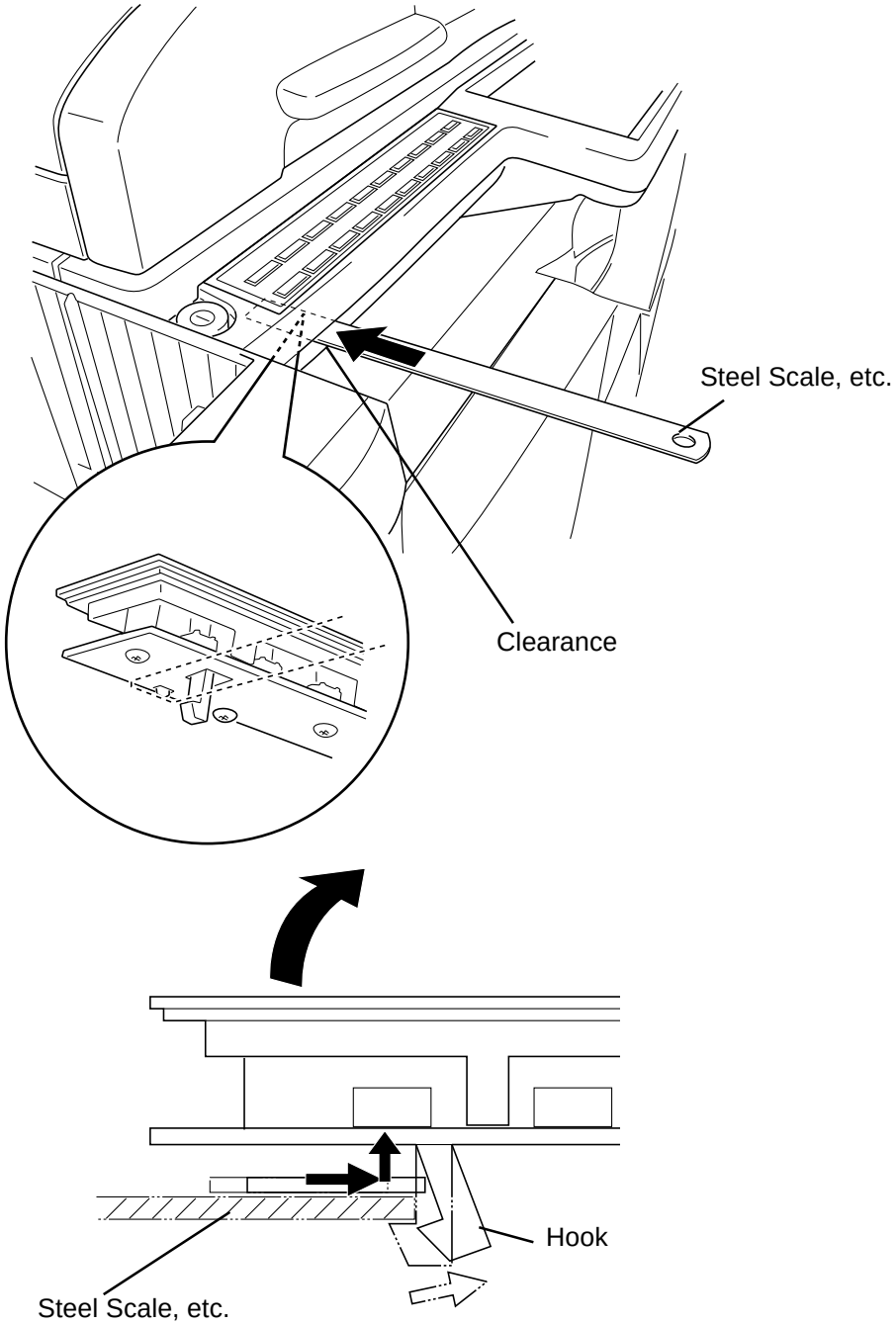


2. Attach a new NCU board in the reverse order of the above.

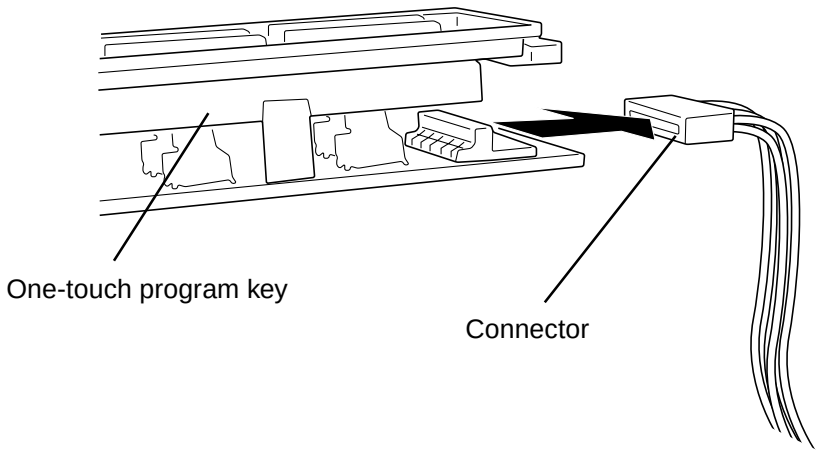
6.2 One-touch Program Key and Speaker

6.2.1 Replacement of One-touch Program Key

1. As shown below, insert a steel scale, etc. in the clearance at the lower right corner of the one-touch program key and move the hook which fixes the one-touch program key to the right a little with the scale, raise the scale, to remove the one-touch program key.



2. Connect the connector to the new one-touch program key as follows:



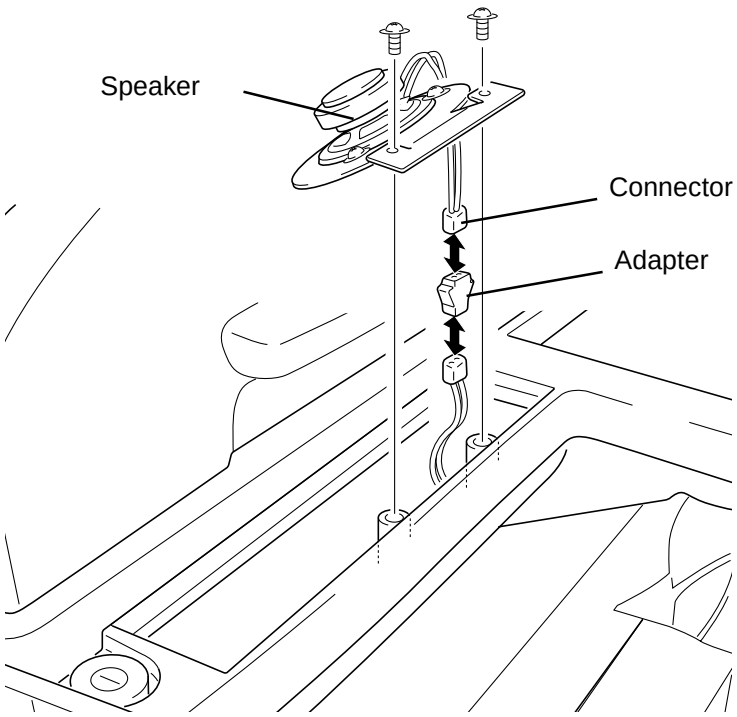
3. Attach a one-touch program key

6.2.2 Replacement of the Speaker

[NOTE] It is required to remove the one-touch program key first for the replacement of the speaker. Refer to 6.2.1 and remove the one-touch program key first.

1. Remove the one-touch program key.

2. Replace the speakers as indicated in the following picture.(two screws and a connector (with an adapter on the speaker side))



3. Attach a speaker in the reverse order of the above.

7

Communication Control

HOME

7.1 Protocol

7.1.1 FIF bits of DIS, DTC and DCS

FIF Data Configuration List (DIS/DTC)

octet	bit	Function	Contents	Default
4	1	Reserved		0
	2	Reserved		0
	3	Reserved		0
	4	Reserved		0
	5	Reserved		0
	6	V.8 ability		0
	7	ECM frame	0: 256 octet 1: 64 octet	0
	8	Reserved		0
5	9	Ready for Polled transmission	1: polled transmission documents exist 0: no polled transmission documents	@
	10	Receiver ability	1: Reception is possible. 0: Reception is impossible.	@
	11	Transmission speed ability	Refer to *1.	1
	12			1
	13			0
	14			1
	15	R8*7.71/mm or 200*200 pels/25.4mm	1: 7.71/mm 0: 3.851/mm	1
	16	Two-dimensional coding ability	1: MR 0: MH	1
6	17	Recording paper width ability	bit (17, 18) 0, 0=A4 1, 0=B4 0, 1=A3 1, 1=Invalid	0
	18			1
	19	Recording paper length ability	bit 0, 1= (19, 20) 0, 0=A4 1, 0=B4 Unlimited 1, 1=Invalid	0
	20			1
	21	Minimum scan line time ability	Refer to *2.	1
	22			0
	23			0
	24	Expansion field		1
7	25	Reserved		0
	26	Non-compression mode		0
	27	Error correction mode (ECM) ability	1: with ECM 0: without ECM	1
	28		0: fixed	0
	29	Reserved		0
	30	Reserved		0
	31	T.6 coding (MMR) ability	1: with MMR 0: without MMR	1
	32	Expansion field		1
8	33	Reserved		0
	34	Reserved		0
	35	Reserved		0
	36	Reserved		0
	37	Reserved		0
	38	Reserved		0
	39	Reserved		0
	40	Expansion field		1

octet	bit	Function	Contents	Default KX
9	41	R8*15.41/mm		1
	42	300*300pels/25.4mm		1
	43	R16*15.41/mm or 400*400pels/25.4mm		1
	44	inch ability		1
	45	mm ability		1
	46	Minimum scan line time ability of high resolution	0: T15.4=T7.7 1: T15.4=1/2T7.7	0
	47	Selective polling		1
	48	Expansion field		1
10	49	Sub address ability		1
	50	Password		1
	51	Ready for data file transmission (polling)		0
	52	Reserved		0
	53	BFT transfer ability		1
	54	DTM transfer ability		0
	55	EDI transfer ability		0
	56	Expansion field		0
11	57	BTM transfer ability		0
	58	Reserved		0
	59	Character or mixed mode documents ready for Tx (polling)		0
	60	Character mode ability		0
	61	Reserved		0
	62	Mixed mode ability		0
	63	Reserved		0
	64	Expansion field		0
12	65	Processible mode (T.505)		0
	66	Digital network ability		0
	67	Full-duplex communication ability	0: Half-duplex 1: Full-duplex	0
	68	JPEG coding ability		0
	69	Full color mode		0
	70		0 Fixed	0
	71	12 bits / pixel component		0
	72	Expansion field		0
13	73	No sub sampling (1:1:1)		0
	74	Custom illuminant		0
	75	Custom gamut range		0
	76	North America Letter (215.9*279.4) ability		0
	77	North America Legal (215.9*355.6) ability		0
	78	Single progression sequential coding (T.85) basic ability		0
	79	Single progression sequential coding (T.85) optional LO ability		0
	80	Expansion field		0

@) Changes to 0 or 1 according to a status of devices.

*1) Transmission speed ability (bit 11, 12, 13 and 14)

11	12	13	14	Contents	Transmission speed
0	0	0	0	V27ter fall back mode	24
0	1	0	0	V27ter	48,24
1	0	0	0	V29	96,72
1	1	0	0	V27ter& V29	96,72,48,24
1	1	0	1	V27ter& V29& V17	144,120,96,72,48,24

*2) Minimum scan line time ability (bit 21, 22 and 23)

21	22	23	Contents	
0	0	0	3.851/mm --- 20ms	7.71/mm --- 20ms
0	0	1	3.851/mm --- 40ms	7.71/mm --- 40ms
0	1	0	3.851/mm --- 10ms	7.71/mm --- 10ms
0	1	1	3.851/mm --- 10ms	7.71/mm --- 5ms
1	0	0	3.851/mm --- 5ms	7.71/mm --- 5ms
1	0	1	3.851/mm --- 40ms	7.71/mm --- 20ms
1	1	0	3.851/mm --- 20ms	7.71/mm --- 10ms
1	1	1	3.851/mm --- 0ms	7.71/mm --- 0ms

FIF data configuration list (DCS)

octet	bit	Function	Contents	Default
4	1	Reserved		0
	2	Reserved		0
	3	Reserved		0
	4	Reserved		0
	5	Reserved		0
	6	Invalid		0
	7	Invalid		0
	8	Reserved		0
5	9		0 fixed	0
	10	Reception command		1
	11	Transmission speed instruction	Refer to *3.	@
	12			@
	13			@
	14			@
	15	R8*7.71/mm or 200*200pels/25.4mm	1: 7.71/mm 0: 3.851/mm	@
	16	Two-dimensional coding instruction	1: MR 0: MH	@
6	17	Recording paper width instruction	bit 0, 0=A4 0, 1=A3 (17, 18) 1, 0=B4 1, 1=Invalid	@
	18			@
	19	Recording paper length instruction	bit 0, 0=A4 Unlimited (19, 20) 1, 0=B4 1, 1=Invalid	@
	20			@
	21	Minimum scan line time instruction	Refer to *4.	@
	22			@
	23			@
	24	Expansion field		@
7	25	Reserved		0
	26	Non-compression mode		0
	27	Error correction mode (ECM) instruction	1: with ECM 0: without ECM	@
	28	Frame size instruction	0: 256octet 1: 64octet	@
	29	Reserved		0
	30	Reserved		0
	31	T.6 coding (MMR) instruction	1: with MMR 0: without MMR	@
	32	Expansion field		@
8	33	Reserved		0
	34	Reserved		0
	35	Reserved		0
	36	Reserved		0
	37	Reserved		0
	38	Reserved		0
	39	Reserved		0
	40	Expansion field		@

octet	bit	Function	Contents	Default
9	41	R8*15.41/mm		@
	42	300*300pels/25.4mm		@
	43	R16*15.41/mm or 400*400pels/25.4mm		@
	44	inch /mm instruction	0: inch setting 1: mm setting	@
	45	Arbitrary		0
	46	Arbitrary		0
	47		0 fixed	0
	48	Expansion field		@
10	49	Sub address transmission		1
	50	Password transmission		1
	51		0 fixed	0
	52	Reserved		0
	53	BFT transfer		@
	54	DTM transfer		0
	55	EDI transfer		0
	56	Expansion field		@
11	57	BMT transfer		0
	58	Reserved		0
	59		0 fixed	0
	60	Character mode		0
	61	Reserved		0
	62	Mixed mode		0
	63	Reserved		0
	64	Expansion field		@
12	65	Processible mode (T.505)		0
	66	Digital network ability		0
	67	Full-duplex communication instruction	0: Half-duplex 1: Full-duplex	0
	68	JPEG coding		0
	69	Full color mode		0
	70	Default Huffman table use		0
	71	12 bits / pixel component		0
	72	Expansion field		@
13	73	No sub sampling (1:1:1)		0
	74	Custom illuminant		0
	75	Custom gamut range		0
	76	North America Letter (215.9*279.4)		0
	77	North America Legal (215.9*355.6)		0
	78	Single progression sequential coding (T.85) basic		0
	79	Single progression sequential coding (T.85) optional LO		0
	80	Expansion field		@

@) Changes to 0 or 1 according to a status of devices.

*3) Transmission speed appointment (bit 11, 12, 13 and 14)

11	12	13	14	Contents
0	0	0	0	24/ V27ter
0	1	0	0	48/ V27ter
1	0	0	0	96/ V29
1	1	0	0	72/ V29
0	0	0	1	144/ V17
0	1	0	1	120/ V17
1	0	0	1	96/ V17
1	1	0	1	72/ V17

*4) Minimum scan line time instructon (bit 21, 22 and 23)

21	22	23	Contents
0	0	0	20ms
0	0	1	40ms
0	1	0	10ms
1	0	0	5ms
1	1	1	0ms

Important

(1) Considered to be A4 width when the DIS recording paper width is invalid (1, 1)
Becomes a FIF error when the DCS recording paper width is invalid (1, 1).

(2) Considered to be unlimited when the DIS recording paper length is invalid (1, 1).
Considered to be unlimited when the DCS recording paper length is invalid (1, 1).
The DCS recording paper length in a machine is made to be of the same length as that in a remote station and is sent.

(3) Considered to be 2400bps when the DIS transmission speed is an undefined value.
Becomes a FIF error when the DCS transmission speed is an undefined value.

(4) Considered to be 40ms instruction when the MSLT of DCS is an undefined value.

(5) Considered to have mm ability when DIS inch ability and mm ability are both set to OFF.
Considered to be 200*100pels/inch when the DCS resolution receives the inch instruction at 3.851/mm.
Becomes a FIF error when more than one of bit41, 42 and 43 are set to on in the resolution of DCS.

(6) Becomes a FIF error when DCS receives the MMR instruction without ECM.

(7) Becomes a FIF error when DCS receives the file transfer (BFT) instruction without ECM.

(8) Becomes a FIF error when DCS shows an instruction which exceeds the ability of the machine.

(9) FIF of DIS/DTC is not sent if last octet is 0 .
DCS sends FIF whose length is the same as that of the machine.

(10) When undefined signals are received, they are received and ignored in consideration of the future expansion. (not a error)

7.1.2 Modem Fallback Sequence

Fallback sequences of TCF and CTC are shown as follows:

(1) V17, V29, and V27 ter

Ability of a Remote Station	TCF Fallback Sequence
V27ter/V29	96/ V29 → 72/ V29 → 48/ V27ter → 24/ V27ter
V27ter/V29/V33V17	144/ V17 → 120/ V17 → 96/ V17 → 72/ V17 → 48/ V27ter → 24/ V27ter

On the transmission side ..... If PPR is received four times, a modem is set in the fallback state. (Actual fallback is performed in the next next phase C.)

On the reception side ..... In case of sending PPR, when the number of error frames exceeds the FP value, a modem is set in the fallback state. (Actual fallback is performed in the next next phase C.)

(2) V34

Line qualitiy is always water by modem.

Optimum speed is automatically selected on-the-fly.

7.1.3 V8/V34 Sequence

(1) V34

Outline

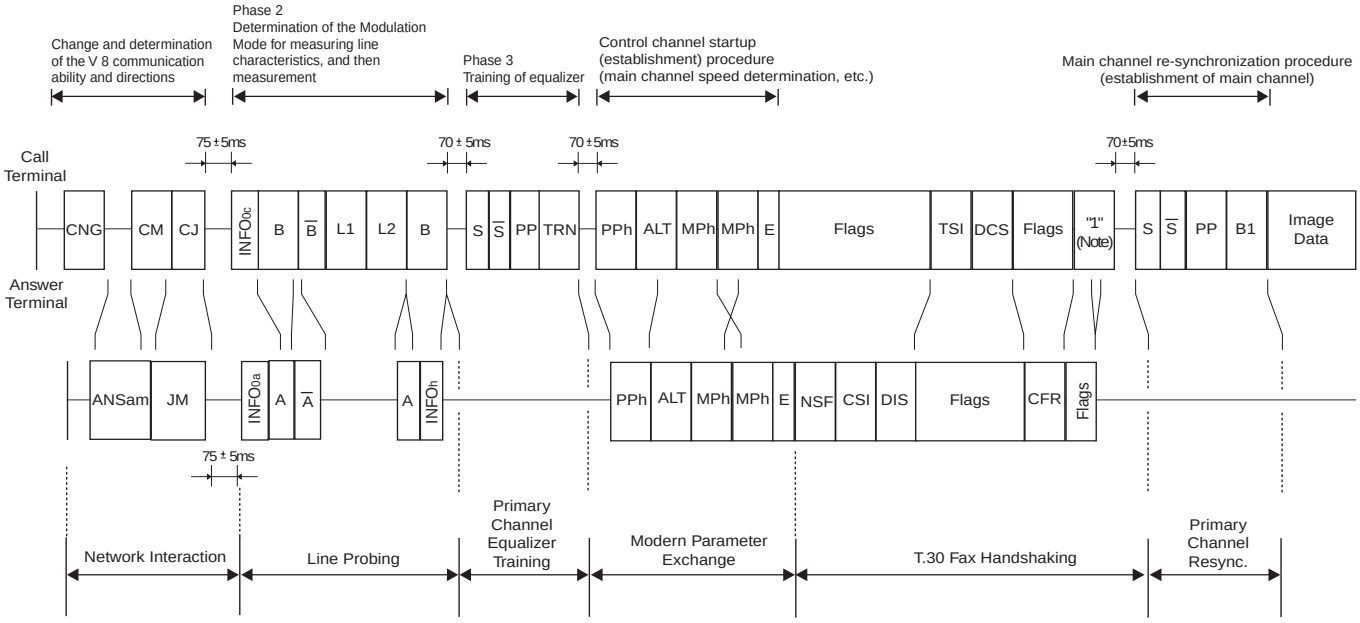
- The 33.6kbps data transmission method and protocol including the V8 protocol. As for each of full-duplex and half-duplex, startup handshake until data transmission starts is divided into four phases, Phase1 to 4, and signals used in each Phase are regulated.

Features

- Full-duplex (echo canceler method) / Half-duplex method are regulated (for data / FAX respectively)
- 2400, 3000 and 3200 symbols / sec (mandatory) and 2743, 2800 and 3429 symbols / sec (option) QAM synchronous transmission at each symbol rate
- Communication at each signal rate of 33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800 and 2400bps
- Four-dimensional-symbol trellis coding
- A 200bps sub channel which can be used as an asynchronous second channel (option)
- Negotiation in which characteristics of a line is measured before transmission starts and the maximum communication speed is achieved by finely adjusting the transmission parameter, based on the result of measurement (carrier / frequency / equalizer / symbol rate / level, etc.)
- Data transmission in the super frame with the hierarchical structure

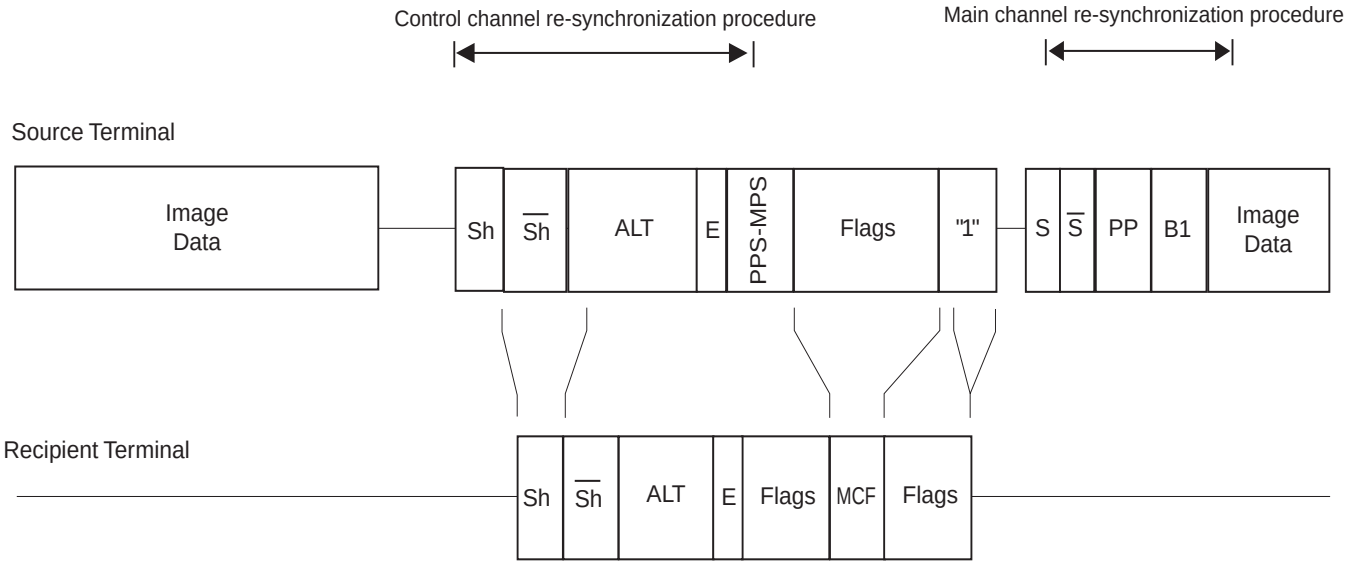
(2) sample of a signal procedure at sending two pages

(2-1) Beginning of communications to beginning of 1st page transmission

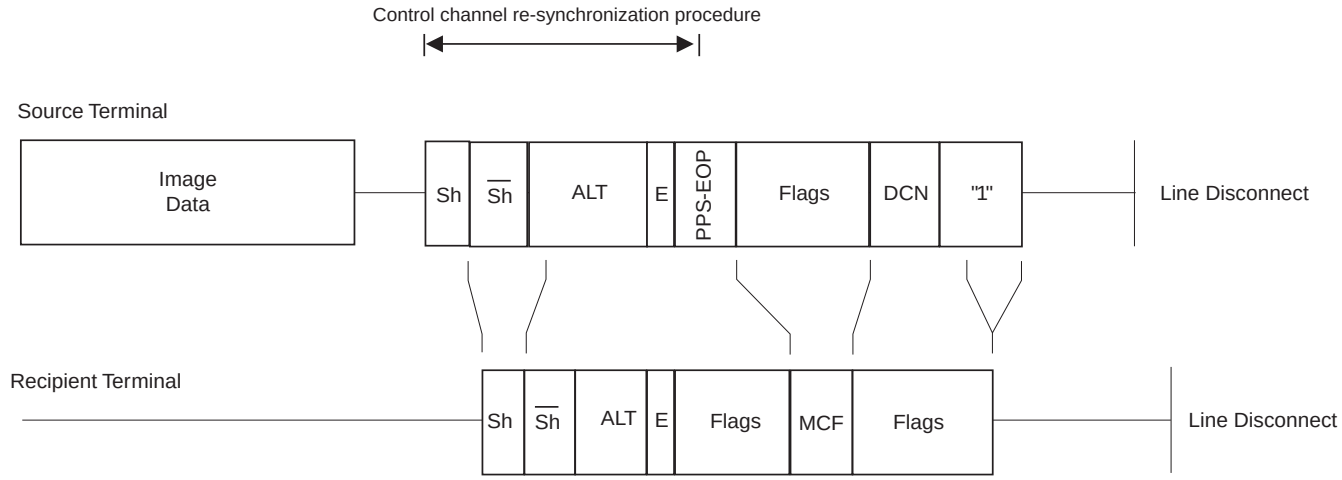


Note - The string of consecutive 1s shall be followed by the 4T of scrambled ones defined in 12.6.3/V34.

(2-2) Signals between pages



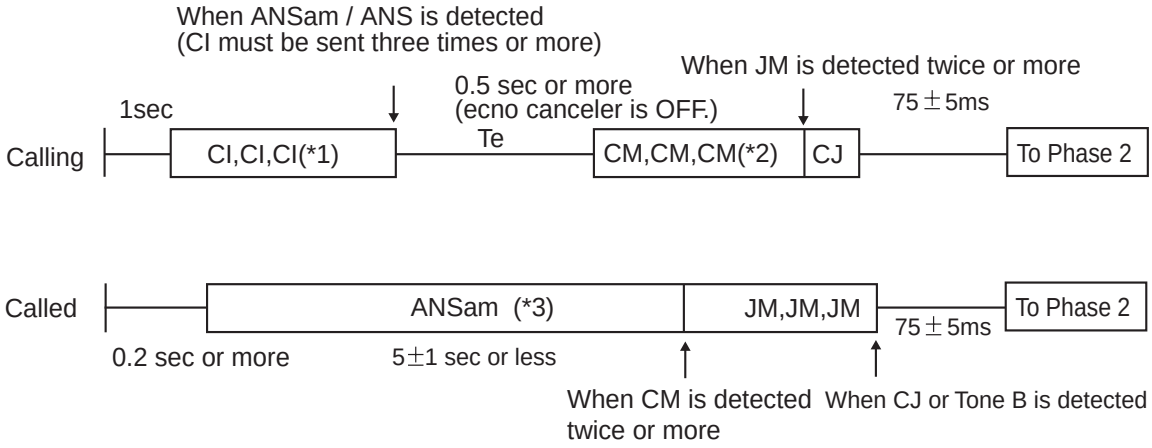
(2-3) 2nd page transmission termination to communication termination



Note - Some terminals may disconnect the line immediately after sending DCN without sending consecutive 1s.

(3) Procedure details

(3-1)Phase 1 (V8) ....Beginning of connection between a calling modem and a called modem

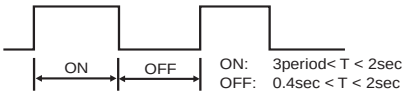


(*1) One of no signals / C1 / CNG (T.30) / CT (V.25)

(*2) V.34 full-duplex ability in the Modulation Mode bit is ON.

(*3) ANSam of phase inversion is sent. Phase inversion is an option in case of supporting only half-duplex. When CM or valid signal from the calling side is not detected, the procedure is moved to T.30, etc. after 75 ± 5ms interval.

A. Signal Definition

Signal Type	Meaning	Signal Direction Call Called	Signal Speed	Timing of Transmission
CI (Call Indicator)	Function display on the calling side	→	V.21(L) (300bps)	Start: after 0.4 seconds after line connection from ON condition (in the following format) Stop: when 3 Period or more has passed after ANSam / ANS is detected 
	[Comments] •CI is a signal to carry Call Function. •The calling side send CI, CT (Call Tone - V25) or CNG. •CI transmission and detection are optional. •The ON minimum time (=3 Period) is of duration of three CI signals in the following format.			
ANSam (Modified Answer Tone)	V.8 procedure on the called side	←	—	When 0.2 seconds or more has passed after reception
	[Comments] •Essential for a called machine which supports the V8 procedure. •2100Hz sinewave is phase-inverted by 400 +/-25ms periods, then amplitude modulated by 15 +/-0.1 Hz sinewave •Average value of modulation factor (x) 0.8 +/- .01 < x < 1.2 +/- .01 •Average transmission power compliant to V2 •2100 +/- 200Hz external power is smaller than the average power by 24dB or more.			
CM (Call Menu)	Modulation mode etc. on the calling side	→ (300bps)	V.21(L)	Start: Te (0.5 sec. ≤ Te ≤ 1 sec.) has passed after CI transmission stops Stop: When two or more JM are detected
	[Comments] •CM is a signal which carries Call Function, Modulation Modes, Protocols and GSTN access. •The first information category is Call Function. •Protocols and GSTN access category are added when the calling side has ability and when needed to inform to a remote station.			
CJ	CM termination	→ (300bps)	V.21(L)	When CM is completed
	[Comments] •START bit (0) and STOP bit (1) are added to 1 octet of all bit 0. •Signal format START bit b0 b1 b2 b3 b4 b5 b6 b7 STOP bit 0 0 0 0 0 0 0 0 0 1			
JM (Joint Menu)	Display of common ability on both calling and called sides	← (300bps)	V.21(H)	Start: When two or more same CM are received Stop: When CJ is received or receives a signal matching the selected Modulation Mode from the calling side
	[Comments] •JM is a response signal to CM and of the same format as the received CM. •The fist information category is Call Function as same as CM. •Modulation Mode sets the common bit on calling and called sides and sends by the same octet as received CM. When there is no common ability, all bits are set to 0 and send by the same octet as received CM. •The minimum item No. is selected from the common bits to determine the actual Modulation Mode. •Protocol is added when it is included in received CM and needed to instruct. •GSTN access is added when it is included in received CM and needed to instruct. •Bit 6 is set to ON when needed to show ability. Bit 5 is set to the same one as received CM			

B. Signal format

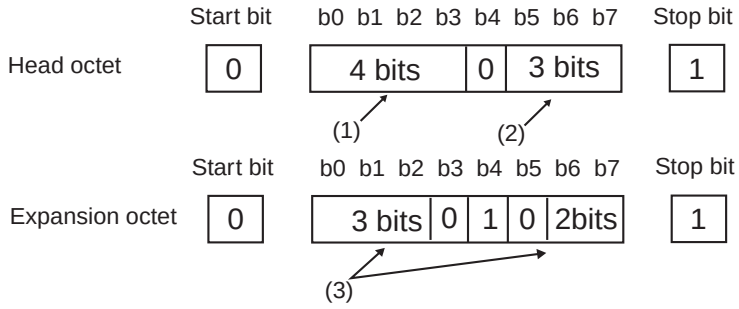
1. Preamble: a signal added before each signal when CI, CM and JM signals are sent.

   Format: 1111111111+0000000001 (for CI)

   +0000001111 (for CM and JM)

2. Common format among each signal CI, CM and JM

Start Bit (=0) is put at the top and Stop Bit (=1) is put at the end of each octet.



(1) :Category tag (tags which represent information types)

Bit assignment				Meaning (information type)		Included signal
b0	b1	b2	b3			
1	0	0	0	...	Call Func	Top of CM, JM / CI
1	0	1	0	...	Modulation Mode	CM / M
0	1	0	1	...	Protocols	CM / M
1	0	1	1	...	GSTN access	CM / M

(2) :Option bit (Differs depending on category tags. Refer to the next item, bit definition.)

(3) :Additional option bit (Differs depending on category tags. Refer to the next item, bit definition.)

Common signal bit definition

2-1. Call Function (1 octet)

Top octet

b0	b1	b2	b3	b4	b5	b6	b7	Meaning
1	0	0	0	0				(Call Function category tag)
					0	1	0	V18 text phone
					1	1	0	Video tex
					0	0	1	FAX transmission from the calling terminal
					1	0	1	FAX reception in the calling terminal
					0	1	1	Data transmission / reception
					1	1	1	Expansion octet= with Call Function represented by next octet

(Other than the above=Reserved)

2-2. Modulation Mode (3 octets)

(1st actet)

b0	b1	b2	b3	b4	b5	b6	b7	Meaning	Item No.
1	0	1	0	0				(Modulation Mode category tag, b4=0 is first octet)	
					0/1			Reserved	
						0/1		V34 full-duplex ability disabled / enabled	1
							0/1	V34 half-duplex ability disabled / enabled	2

(2nd octet)

b0	b1	b2	b3	b4	b5	b6	b7	Meaning	Item No.
			0	1	0			(b3, 4 and 5=0, 1, 0 means expanded oct.)	
0/1								V32bis / V32 ability disabled / enabled	3
	0/1							V22bis / V22 ability disabled / enabled	4
		0/1						V17 ability disabled / enabled	5
						0/1		V29 half-duplex ability disabled / enabled (used in T.30)	6
							0/1	V27ter ability disabled / enabled	7

(3rd octet)

b0	b1	b2	b3	b4	b5	b6	b7	Meaning	Item No.
			0	1	0			(b3, 4 and 5=0, 1, 0 means expanded oct.)	
0/1								V26ter ability disabled / enabled	8
	0/1							V26bis ability disabled / enabled	9
		0/1						V23 full-duplex ability disabled / enabled	10
						0/1		V23 half-duplex ability disabled / enabled	11
							0/1	V21 ability disabled / enabled	12

2-3. Protocol (1 octet)

Protocols (1 octet)

b0	b1	b2	b3	b4	b5	b6	b7	Meaning
0	1	0	1	0				(Protocols category tag)
					1	0	0	V42 LAPM protocol
					1	1	1	Protocol represented by expanding octet

(Other than the above = Reserved)

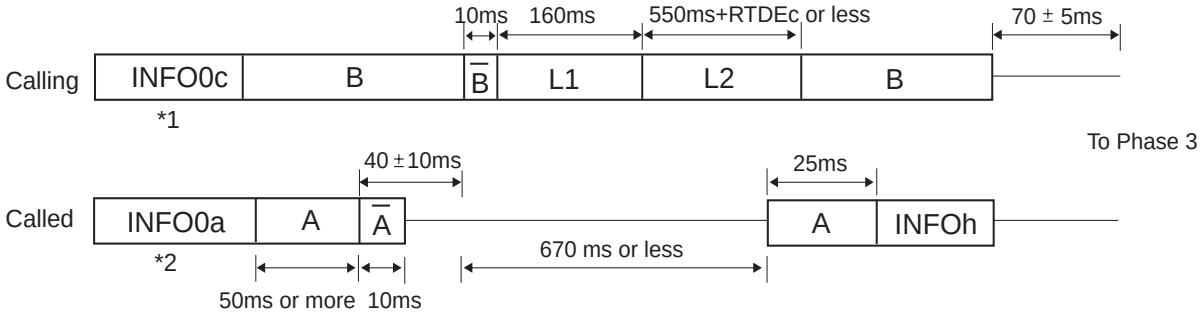
2-4. GSTN access (1 octet)

GSTN access (1 octet)

b0	b1	b2	b3	b4	b5	b6	b7	Meaning
1	0	1	1	0				(GSTN access category tag)
					0/1			Celluler connection in the calling side
						0/1		Celluler connection in the called side
							0	Reserved

(3-1) Phase 2 (Probing) ..... V.34 basic setting

- Exchange of modulation ability
- Measurement of line characteristics (bi-direction)
- Determination and exchange of compensation values to line characteristics (compensation values of maximum data rate, transmission level, pre-emphasis (*))
  * linear equalizer for compensating amplitude distortion



A : 2400Hz tone signal output from the called side (Level is a set value -1dB). 1800Hz guard tone (Level is a set value -7dB) is output simultaneously from the called side.

$\overline{A}$: 2400Hz tone signal output from the called side (Phase inversion of A) . 1800Hz guard tone.

B : 1200Hz tone signal output from the called side

$\overline{B}$: 1200Hz tone signal output from the calling side (Phase inversion of B)

INFO 0x : Binary signal for indicating auto modulation option signal (x=a/c: a: called side, c: calling side)

L1, L2 : Signal for conditioning line characteristics (tone synthesis at the interval of 150Hz from 150 to 3750Hz (except for 900, 1200, 1800 and 2400Hz))

L1: 160ms Level= Set value+6dB

L2: Maximum 550ms+TRDEx Level = Set value

INFO h : Binary signal for indicating parameters used in Phase 3 (training of main channel equalizer). This signal is sent from a modem receiving main channel data to a transmitting modem.

*1 INFO 0c Bit28 OFF

*2 INFO 0a Bit28 OFF

INFO 0x Bit Assignment

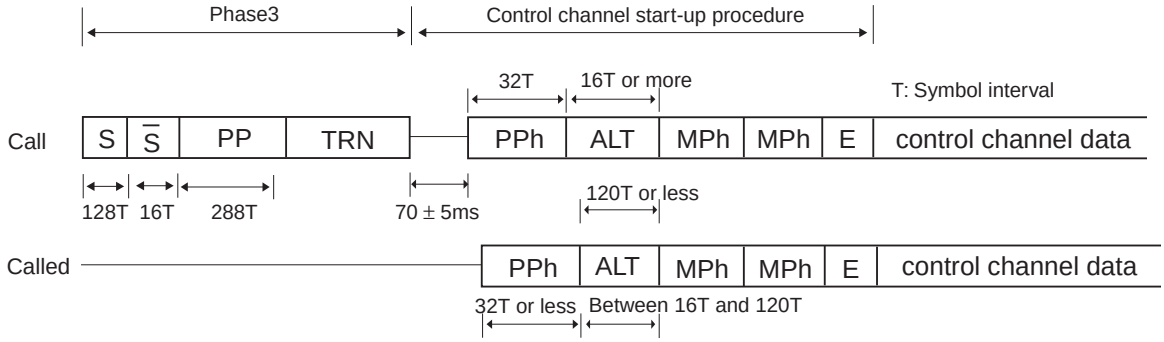
Bits(LSB-MSB)	Value	Meaning
0-3	1111	Fill Bits
4-11	01110010	Bit string for frame synchronization
12	0 / 1	2743 symbol / sec support
13	0 / 1	2800 symbol / sec support
14	0 / 1	3429 symbol / sec support
15	0 / 1	Ability to transmit at low carrier frequency at 3000 symbol / sec
16	0 / 1	Ability to transmit at high carrier frequency at 3000 symbol / sec
17	0 / 1	Ability to transmit at low carrier frequency at 3200 symbol / sec
18	0 / 1	Ability to transmit at high carrier frequency at 3200 symbol / sec
19	0 / 1	3429 symbol / sec transmission
20	0 / 1	Ability to lower the transmission level than a preset value
21-23	0 to 5	Maximum tolerance of symbol rates between transmission and reception 0; 2400, 1:2743, 2:2800, 3:3000, 4:3200, 5:3429 symbol/sec
24	0 / 1	1=INFO 0 is sent from the CME modem
25	0 / 1	1664 signal point (33.6K) ability
26-27	0 to 3	Clock source transmission 0: internal, 1: external, 2: synchronous to the reception clock 3: Reserved
28	0 / 1	1=Correct INFO 0 frame is received during error recovery
29-44		CRC
45-48	1111	Fill Bits

INFO h Bit Assignment

Bits(LSB-MSB)	Value	Meaning
0-3	1111	Fill Bits
4-11	01110010	Bit string for frame synchronization (transmitted from the left side)
12-14	0 to 7	Output reduction width demanded by the reception modem (dB) When *the modem on the transmitting side can not reduce output* at INFO 0, the value is set to 0.
15-21	0 to127	The length of TRN which the modem of the transmitting side send in the Phase 3 (x35ms)
22	0 / 1	High carrier is user for data mode Tx.
23-26	0 / 1	Pre-emphasis filer index No.which is used for data transmission
27-29	0 / 1	Symbol rate of data transmission 0: 2400 ***5: 3429 (symbol / sec)
30	0 / 1	Selection of parameters used for TRN. 4 points / 16 points
31-46		CRC
47-50	1111	Fill Bits

(3-3) Phase 3 .....Training of the main channel equalizer

- Band division full-duplex method
- Transmission and reception of Phase 3 signals (S, $\overline{S}$, PP, TRN) are executed by using parameter values which are determined by exchanging INF Oh. (symbol rate, carrier frequency, pre-emphasis filter and transmission level)



The speed of the following signals (Phase 3) are determined by INFOh. (The following signals are used in the main channel in the half-duplex procedure.)

S : Signal which sends alternately 0 point and a point which rotated 0 point counterclockwise by 90 degrees

$\overline{S}$: Signal which sends alternately a point which rotated 0 point counterclockwise by 180 degrees and a point which rotated 0 point counterclockwise by 270 degrees

PP : Special signal which is sent from a remote station for adjusting an equalizer

TRN : Training signal. (Symbol rate and duration are determined in INFOh.)

Control channel signal

The following signals are used for establishing the control channel or re-synchronization and retrain. (peculiar to half-duplex procedure)

Modulation method : 1200 / 2400bps QAM modulation (600 ± 0.01 symbols / sec). However, training and synchronous signals are 1200bps.
Calling modem:Carrier (=1200Hz ± 0.01% (level=set value))
Called modem:Carrier (=2400Hz ± 0.01% (level=set value-1dB))
+Guard tone (=1800Hz ± 0.01% (level=set value-7dB))

Sh : Signal which sends alternately 0 point and a point which rotated 0 point counterclockwise by 90 degrees (the same as S)

$\overline{Sh}$: Signal which sends alternately a point which rotated 0 point counterclockwise by 180 degrees and a point which rotated 0 point counterclockwise by 270 degrees (the same as S)

AC : Signal which send alternately 0 point and a point which rotated 0 point by 180 degrees

PPh : Special signal which is sent from a remote station for adjusting an equalizer (used when the initial of the control channel and re-synchronization are executed)

ALT : Signal which scrambled alternate signals of 0 and 1 (1200bps)

MPh : Binary signal used for exchanging parameters of the modulation method when data is actually sent and received by using the main channel
(Both type 0 and type 1 (type 0+pre-recording coefficient) must be received.)
(When type 0 is received, pre-recording coefficient is considered to be 0 and never functions.)

E : "1", binary of 20 bit, which represents the beginning of user data transmission on the control channel

MPh (type 0) Bit Assignment

Bits(LSB-MSB)	Value	Meaning
0-16	All bit 1	Bit string for frame synchronization
17	0	Start bit
18	0	MP signal type
19	0	Reserved
20-23	0 to14	Maximum transmission rate from the calling modem to the called modem (x2400) ▼1
24-26	0,0,0	Reserved
27	0 / 1	Control channel data transmission rate which is selected by the opposed transmitter 1200bps / 2400bps
28	0	Reserved
29-30		Trellis coding device selection ▼2 (00: 16 state, 10: 32 state, 01: 64 state and 11: Reserved)
31	0 / 1	Non-linear encoder parameter selection for the terminal transmitter of a remote station ▼2 (0: ϕ=0, 1: ϕ0.3125)
32	0 / 1	Parameter (shaping) selection when the data rate is determined within each symbol rate ▼2 (0: Minimum, 1: Expanded)
33	0	Reserved
34	0	Start bit
35-49		Communication speed mask (0/1=Ability of both modems disabled / enabled) (Bit35=2400bps ... Bit46=28.8kbps, Bit47=31.2kbps, Bit48=33.6kbps and Bit49=Reserved)
50	0 / 1	Use of control channel imbalance data rate No / Yes
51	0	Start bit
52-67	0	Reserved
68	0	Start bit
69-84		CRC
85-87	0,0,0	Fill Bits

▼1 13 and 14 are used when the opposed modem supports up to 1664 points

▼2 Set to 0 on the transmitting modem.

MPh (type 1) Bit Assignment

Bits(LSB-MSB)	Value	Meaning
0-16	All bit 1	Bit string for frame synchronization
17	0	Start bit
18	1	MP signal type
19	0	Reserved
20-23	1to14	Maximum transmission rate from the calling modem to the called modem (x2400) ▼1
24-26	0,0,0	Reserved
27	0 / 1	Control channel data transmission rate which is selected by the opposed transmitter 1200bps / 2400bps
28	0	Reserved
29-30		Trellis coding device selection ▼2 (00: 16 state, 10: 32 state, 01: 64 state and 11: Reserved)
31	0 / 1	Non-linear encoder parameter selection for the terminal transmitter of a remote station ▼2 (0: ϕ=0, 1: ϕ0.3125)
32	0 / 1	Parameter (shaping) selection when the data rate is determined within each symbol rate ▼2 (0: Minimum, 1: Expanded)
33	0	Reserved
34	0	Start bit
35-49		Communication speed mask (0/1=Ability of both modems disabled / enabled) (Bit35=2400bps ... Bit46=28.8kbps, Bit47=31.2kbps, Bit48=33.6kbps and Bit49=Reserved)
50	0 / 1	Use of control channel imbalance data rate No / Yes
51	0	Start bit
52-67		Pre-coding coefficient h(1) Real
68	0	Start bit
69-84		Pre-coding coefficient h(1) Imaginary
85	0	Start bit
86-101		Pre-coding coefficient h(2) Real
102	0	Start bit
103-118		Pre-coding coefficient h(2)Imaginary
119	0	Start bit
120-135		Pre-coding coefficient h(3) Real
136	0	Start bit
137-152		Pre-coding coefficient h(3)Imaginary
153	0	Start bit
154-169		Reserved
170	0	Start bit
171-186		CRC
187	0	Fill Bits

▼1 13 and 14 are used when the opposed modem supports up to 1664 points

▼2 Set to 0 on the transmitting modem.

(3-4) Re-synchronization procedure / Startup procedure

A procedure required to switch control channel and main channel in the half-duplex procedure

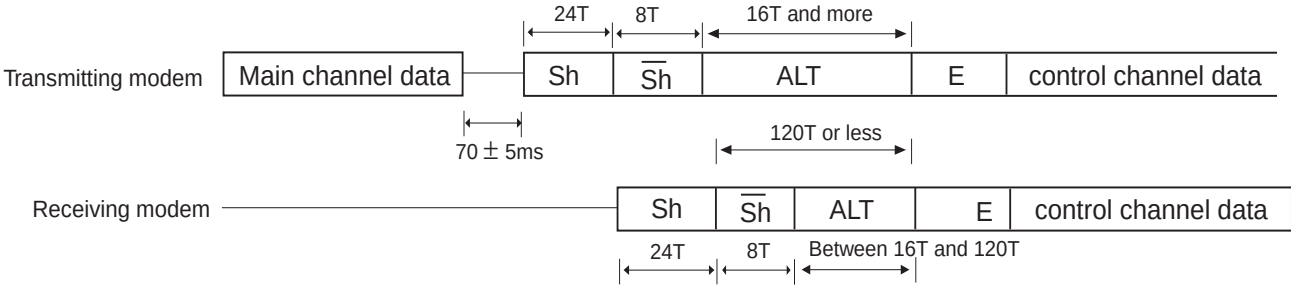
A procedure which includes another modulation parameter exchanging is especially called the startup procedure. (used for changing the communication speed)

Startup procedure

- Control channel startup procedure: Refer to the 3-3 figure. (By exchanging MPh, the communication speed is changed.)
- "Control channel re-synchronization procedure" is not used.

Re-synchronization procedure

Control channel re-synchronization Refer to signals related to control channels in 3-3 for signal names and change method.



Main channel re-synchronization procedure and Turn-off

The receiving modem re-synchronizes the main channel by using the PP signal. After B1, starts receiving Primary Data.

The transmitting modem sends the scrambled 1's for 35ms after Primary Data transmission has been completed.

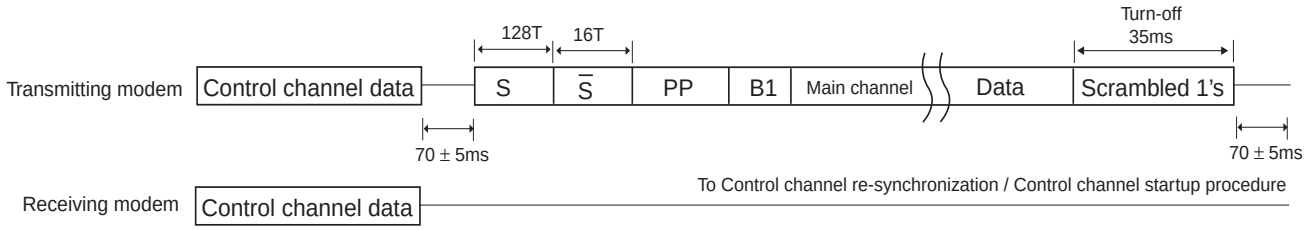
Both modems move to the control channel re-synchronization procedure or the control channel startup procedure.

S : Signal which sends alternately 0 point and a point which rotated 0 point counterclockwise by 90 degrees

$\overline{S}$: Signal which sends alternately a point which rotated 0 point counterclockwise by 180 degrees and a point which rotated 0 point counterclockwise by 270 degrees

PP : Special for adjusting an equalizer

B1 : High-speed signal of one frame length which is sent at the end of a series of startup sequence in the selected modulation parameter.



(4) Others

(4-1) Minimum reception signal level (RLSD) (half-duplex mode only)

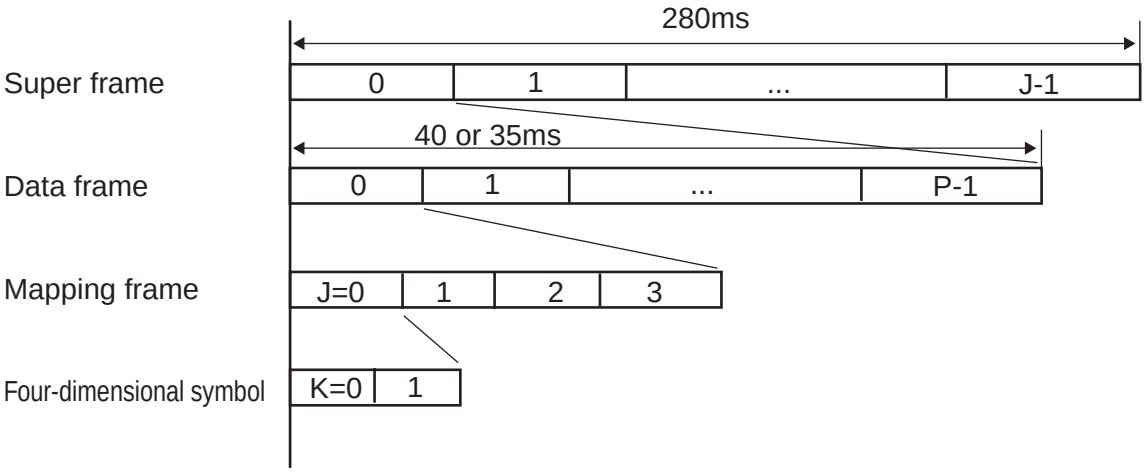
- The reception circuit is turned to On when the signal becomes 43 dBm or more
- When the signal becomes 48 dBm or less, the reception circuit is turned Off within 20 to 25ms after it has exceeded the thresh old.

(4-2) Data frame structure

All data transmitted in V.34 (after the Phase 4) is treated in the following frame format.

J :The number of data frames within one super frame

P :The number of mapping frames within one data frame



Modulation Speed	J	P
2400baud	7	12
2743baud	8	12
2800baud	7	14
3000baud	7	15
3200baud	7	16
3429baud	8	15

7.2 Telephone Function

7.2.1 TEL/FAX Switching

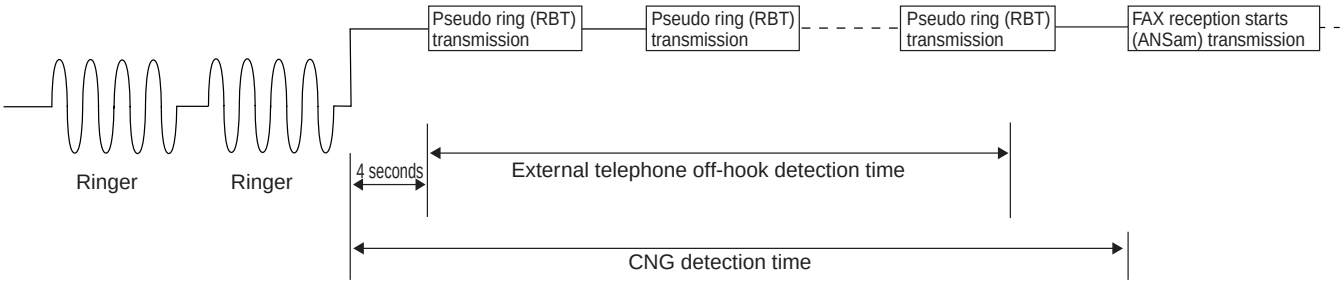
Outline

A function to switch telephone and FAX automatically after reception.

Japan only.

Operation

1. When CNG is not detected for four seconds after line seizure, this function sends RBT (pseudo Ring Back Tone) and continues CNG detection, outputting RBT (pseudo ring) from the speaker.
2. When CNG is not detected for a given period (Default is 20 seconds. Changeable by address parameters), this function stops RBT transmission and becomes FAX reception.
3. This function detects OFF-HOOK of the external telephone during RBT transmission only.
4. When OFF-HOOK of the external telephone is detected during RBT transmission, the line is connected to the external telephone. Even if you use the telephone, you can manually switch to the FAX reception after that.
5. When CNG is detected during the above-mentioned RBT transmission, RBT transmission is stopped and the FAX reception starts.



No.	FP	Meaning And Purpose	Address	Value	Default (Japan)
1	TEL/FAX switching	External telephone off-hook detection function	0x0E0017 bit5	1 ... TEL/FAX auto switching ON (RBT transmission) 0 ... TEL/FAX auto switching OFF	1
2	RBT transmission time	RBT transmission time (in steps of 1 second)	0x0E012F		0x14 (20 seconds)

Combination with other functions related to telephone

No.	Function	Combination	Explanation
1	Number display (Japan)	Yes	Line is caught after a name and a number are displayed. Then, the above-mentioned operation are executed.
2	Dial-in (Japan)	Yes	In case of calling to a FAX number, the above-mentioned operation are executed after line seizure. Line is not caught in case of calling to a TEL number (other than FAX numbers).
3	Answering machine connection mode	Yes	(irrelevant to TEL/FAX auto switching operation) Fax starts receiving when an answering machine does not answer within a preset period (20 sec default) or when CNG is detected during answering from an answering machine. Fax does not start receiving when CNG is not detected within a preset period (30 sec default).

8

Explanation of Functions

HOME

8.1 F-Code

F-code is a function to realize confidential transmission / bulletin board polling / relay transmission by using SUB, SEP and SID signals.

To be more specific, a machine which can open "a box" on the memory is called "a F code compliant center machine" and a machine which can access to a center machine by using the F code function is called "a F-code compliant machine." The center machine can have plural "boxes" and they are used as the confidential box, bulletin board box and relay box respectively.

Function	Outline	Signals to be used				Required Function	Remarks
		SUB	SEP	SID	Purpose (Meaning)		
Confidential transmission	Sent to the center machine which opens a confidential box by appointing the confidential box No. (The center machine has memory reception to the confidential box.)	Used	Not	Optional	SUB =Appointment of a confidential box SID = Password	Message adding	Each box No. = Contents of a signal (20 digits or less)
Bulletin board polling	By appointing a box No. in the center machine which opens a bulletin board, contents are polled.	Not	Used	Not	SEP = Appointment of a bulletin board box	Message overwriting With a mode which is not deleted by polling	
Relay trans-mission	Requesting relay to the relay machine which opens a relay box (No.) in which a broadcasting trans-mission remote station is registered.	Used	Not	Used	SUB = Appointment of a relay box (No.) SID = Password		

Signal format

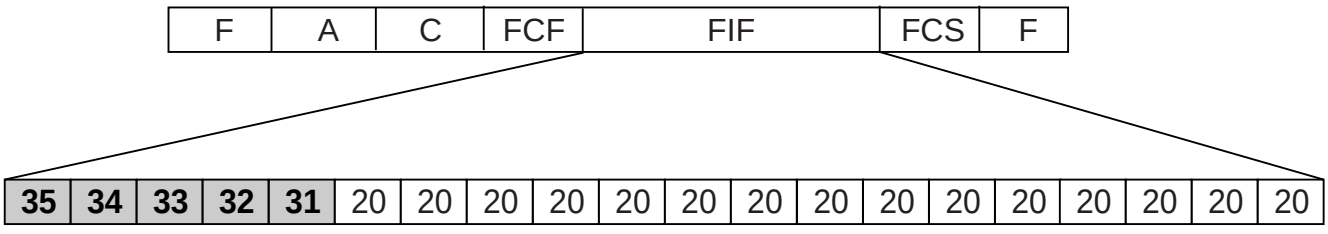
Contents of signals

Item / Signal Name	SUB/SEP	SID
Characters	0 to 9 only (* and # must not be used.)	0 to 9, * and #
Contents	Box No.	Password
No. of digits	Arbitrary between 1 and 20	
Space between digits	Prohibited	
Others	Impossible to designate more than one box	

FIF (SUB/SEP/SID) Common

The last digit is left-justified. The remaining are filled with space (0x20)

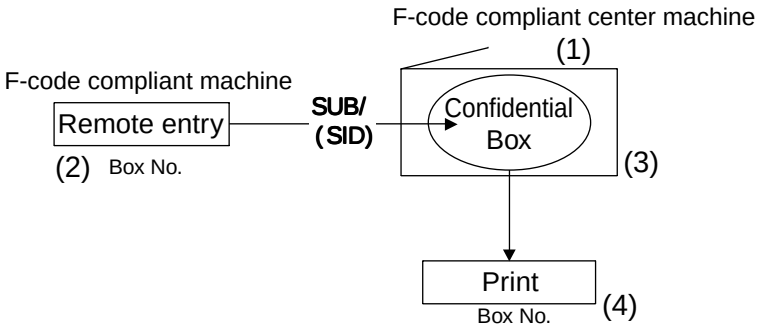
eg.) 12345



DIS/DTC/DCS bit Condition

Bit No.	Meaning	DIS/DTC	DCS
47	Selective polling ability	DIS = ON when SEP reception is possible DTC = On when SEP is transmitted	0: fixed
49	Sub address ability / function	ON when SUB reception is possible	ON when SUB transmission is possible
50	Password / sender ID	DIS = ON when SID reception is possible DTC = On when SID is transmitted	ON when SID is transmitted

8.1.1 F-Code Confidential Transmission



(1) The confidential box is registered in the center machine.
- Registration of confidented box No. and name
- Registration of confidented password
- Appointment of confidented password check On or Off
- Registration of access protect No.

(2) Transmission operation on the transmitting side

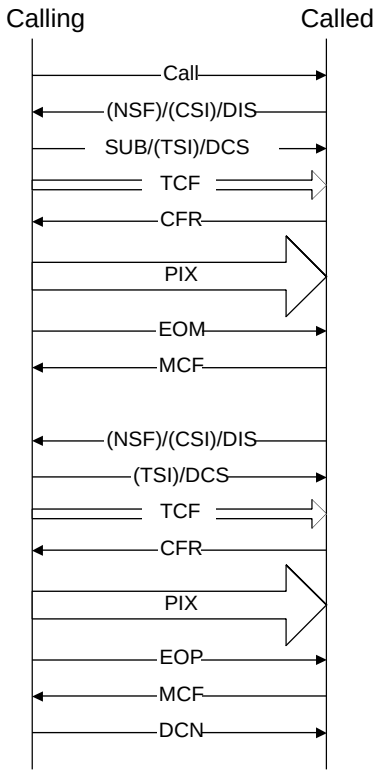
(3) Reception in the center machine
- Automatic output of confidential communication report

(4) Printing in the center machine
- Output by entering an access protect No.

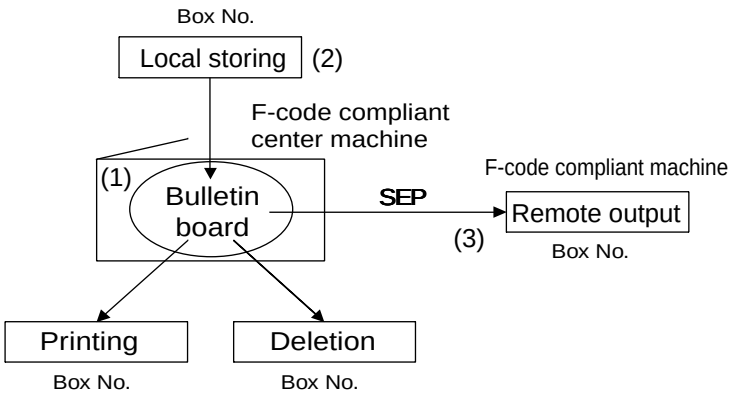
BOX specifications

1) Confidential BOX ..... Possible to register up to 20, including the bulletin board.
2) Confidential BOX No. ..... Represented by a three digit number. Operationally between 001 and 020. You can not open the same BOX number as the bulletin board No. which has been already opened. (On the SUB signals, they are treated as 001 to 020.)
3) Confidential password ..... Possible to use.
4) Confidential BOX name ..... Possible to resister up to 10 characters.
5) Erased at printing ..... Erased on every page after output.
6) Access protect No. ..... Represented by a four digit number between 0000 and 9999.
7) No. of files in confidential box
..... 100 files at the maximum including bulletin board.

Example of the Protocol Sequence



8.1.2 F-Code Bulletin Board Polling



(1) Registration of the bulletin board box in the center machine

- Registration of the bulletin board No. and name

(2) Storing documents in the bulletin board

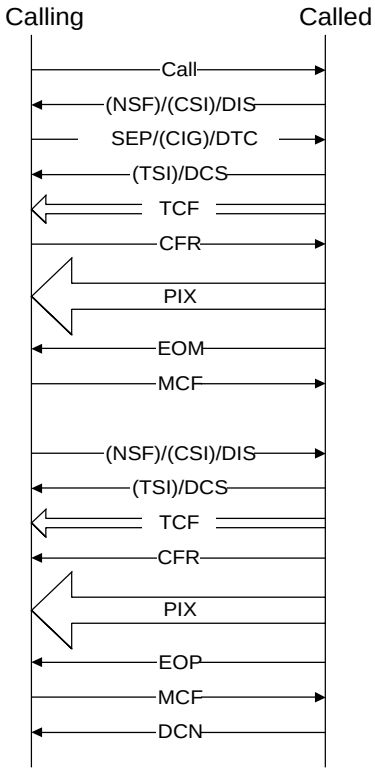
(3) Operations for polling reception on the compliant machine

- Appointment of bulletin board No.

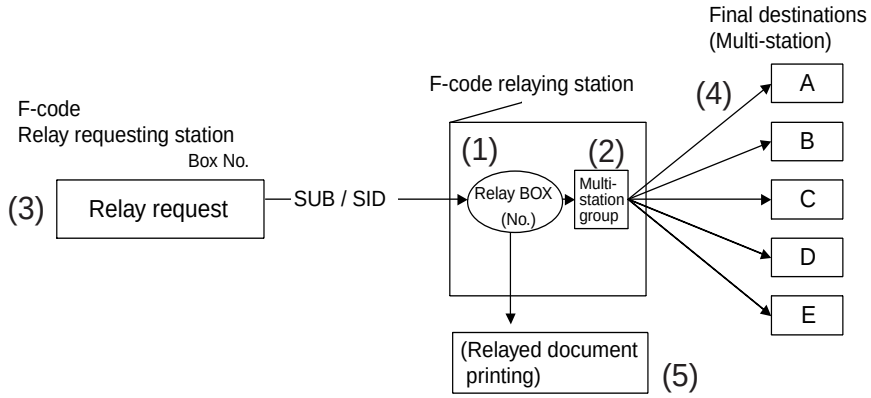
BOX specifications

1) Bulletin board BOX ..... Possible to register up to 20, including the confidential box.
2) Bulletin board BOX No. ..... Represented by a three digit number. Operationally between 001 and 020. You can not open the same BOX number as the confidential box which has been already opened. (On the SUB signals, they are treated as 001 to 020.)
3) Bulletin board password ..... No
4) Bulletin board BOX name .... Yes 10 Character max
5) Erased at printing ..... Not erased when printed.
6) Erased at polling ..... Not erased when polled.
7) Access protect No. ..... No
8) No. of document registration to the bulletin board BOX
..... Only once. If already exist, it is overwritten.

Example of Protocol Sequence



8.1.3 F-Code Relay Transmission



(1) The relay BOX is registered in the relaying station.
- Registering relay BOX No., relay password and relay group No.

(2) Registration of group
- Registering final destinations in the group No.

(3) Transmission operation in the relay requesting station
- Instructs relay BOX no. and relay password.

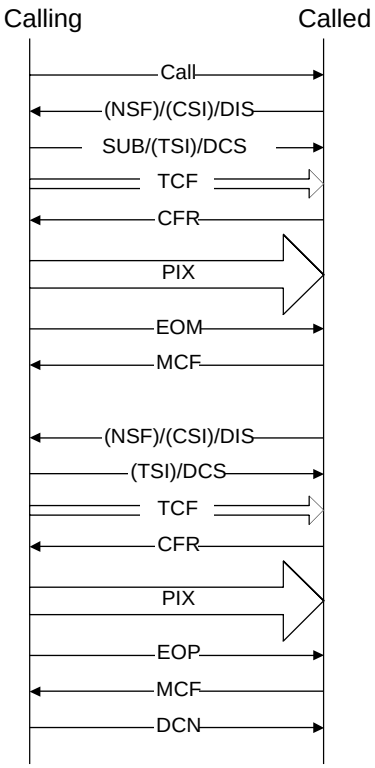
(4) Transmission to the final remote stations registered in the group

(5) Possible to printed relayed documents on the relaying station (depends on the parameter setting)

BOX specifications

1) Relay BOX ..... Possible to register up to 5.
2) Relay BOX No. ..... 100 to 104
3) Relay password ..... Represented by a four digit number. between 0000 and 9999. On the SID signals, they are treated as 0000 to 9999.
4) Relay BOX name ..... No
5) Access protect No. ..... No
6) Final destination designation ... Possible only to register in the relay BOX by appointing the group.
7) File erasure after transfer .... Always erased
8) Conditions to erase BOX by operations
..... Only when there are no files of received messages in the relay BOX, BOX can be erased.

Protocol Sequence Example



8.2 Transmission Function

8.2.1 Original Scan Mode

The original scan mode is roughly classified by the regular original scan and the irregular original scan.

Regular original	Irregular original	Mode selection
Normal mode	RADF irregular mode	Default setting
Mixed size original mode Z fold original mode	Long original mode	Application menu

Scan Mode Default Setting

The scan mode can be set by using the function parameter of the service mode. The default is the RADF irregular mode.

	Paper size detection	Default	Frame erasure
RADF irregular mode	Trailing edge detection	Yes	Trailing edge erasure may not be done.
Normal mode	ADF paper size sensor	Automatically selected when using the page related application function (book transmission, etc.).	Frame erasure of all sides

8.2.2 Book Transmission

One page of document set on the platen (or ADF) is divided into two pages of documents and transmitted.

Method of selection

Select the book transmission and choose either scanning from the left or scanning from the right. The frame erasure is automatically selected in this case.

It can be selected in the application function menu to set either scanning from the left or scanning from the right.

Document size

The document size of book transmission is either A3R or B4R. Two pages of A4 documents or two pages of B5 documents are transmitted. In the case that the document sizes other than the above are used, a warning is displayed in the main menu and scanning does not start.

8.2.3 Restored Transmission

When the memory transmission is not properly performed, documents are kept in memory and resent by the user operation. When the user operation is not used and the designated time has passed, documents are automatically erased.

As a result of this, when transmission is not properly performed, it is not required to scan the documents again, and you can resend them by easy operations.

Entry item at the time of user appointment transmission is only a remote station (dial No.).

Remote station (dial No.)

This function is used to change dial member for such case as dialed to a wrong remote station.

1) The actually dialed number is displayed by default.

2) Abbr / Key pad can be used

Related settings

1) Enable the restored transmission function
   - Use the key operator-Special setting.
   - The restored transmission function is enabled when there is a setting.

   Note: When there is a restored transmission job, even if the setting is changed (enabled * to disabled), the job in the undelivered condition is treated as the restored transmission.

2) Undelivered file holding time
   - 12 / 24 / 48 / 72 (hour)
   - Set undelivered file holing time when there are no user operations

Specifications

1) No. of pages for resending .... Resent from the first page
2) Timer task..... Not used
3) Restored transmission result report..... No
4) Resending condition..... When the batch transmission job is not delivered, resending is also performed in batch.When the instant batch transmission is not delivered, resending is also performed in batch.
5) Function to inhibit combination ..... Instant batch transmission (The instant batch transmission along with reserved instant communications .)
   Polled transmission
   Manual transfer

8.2.4 Instant Batch Transmission

This is a function to send the fax transmission reserved jobs (not timers) as a batch when they have the same remote stations and the same conditions and can be continuously transmitted. The communication time is shortened and the telephone charge can be reduced.

Conditions for instant batch transmission

- Only the instant memory transmission. Transfer, relay and polled transmission are excluded.Additionally, the switching transmission of memory to quick memory is excluded.
- All remote stations must be identical. Dialing method (Abbr, key pad) must be to identical.
- The resolution must be identical.
- The following application function appointment concerning communications must be identical.
  - International mode ON / OFF
  - ECM ON / OFF
  - V34 appointment ON / OFF
- The following application function concerning communications must not be appointed.
  - Confidential transmission
  - Relay request transmission
  - Password appointment
- Reservations of the instant batch transmission are waiting (not called).
- The instant batch transmission is five reservations at the maximum.

Others

Transmission result report

- The transmission result report is output in every reservation when set to ON.

8.2.5 Forwarding Transmission

(1) General

The function to forward received documents to another FAX for printing. There are two kinds as follows:

Auto Forwarding

The function to transmit received documents to the registered remote stations after reception (Full-time appointment forwarding: with the same function as in the conventional machines). It is possible to print received documents at the time of forwarding.

Mannual Forwarding

The function to forward the received documents in the print output waiting condition to the designated remote station and to print by using a substitute machine (one time appointment). Additionally, documents are not erased after forwarding, and reserved in the print output waiting condition.

(2) User entry item

Auto Forwarding

The following registrations are set in the key operator menu.

- Remote station setting Fax number (possible to designate one remote station using key pad.)
- Condition setting (Forwarding FAX setting & forwarded document printing setting)
  - Disabled Not forwarded (default)
  - Enabled 1 Forwarded and always printed
  - Enabled 2 Forwarded & printed only when documents are not delivered

Manual Forwarding

Move to the key operator menu and transmit received documents in the following procedure.

- Remote station setting Fax number (possible to designate one remote station using key pad.)

(3) Combination inhibit function

Auto Forwarding

- Page unit reception
  The forwarding mode selection menu is grayed out at the time of setting the page reception mode.The page reception mode selection menu is grayed out at the time of setting the forwarding mode.

Manual Forwarding (manual transfer at emergency)

- You can not use external phones.
- You can not designate the application function (2-in-1, polling, etc.)
- You can not designate the document related mode (density, two-sided, etc.)

8.3 Reception Function

8.3.1 Reduction / Division of Reception

Parameters related to reduction / division are set by using the key operator mode. There are two parameters as follows:

“Reduction for record” ..... 100, 96, 95, 94, ..., 87 ..... a

“Page divided print” ..... ON, OFF ..... b

The reception recording mode is determined by the above-mentioned parameters, a and b.

-Auto reduction reception mode

a = Don’t care (except 100)
b = OFF

The received documents are automatically reduced in the range of 35 to 96 %.

-Equal size (100%) recording reception mode

a = 100
b = Don't care

Documents are printed in 100% size on paper whic covers received length-20mm. The document end is cut off by 20mm at the maximum. When the received length exceeds a paper by 20mm, the next larger paper size is selected. When documents are larger than A3 size, the part that lies off pages is cut off.

-Page division recording reception mode

a = 96, 95, ..., 87
b = ON

Documents are reduced to three reduction rate (90%, 86%, or 82%) determined by the width of received documents and the selected recording paper. When they are still larger than a paper size, they are reduced to a value in “a” for the division recording.

90% = Fixed value

86%, 82% = Reduction rate determined by the main scanning direction

The paper selection and division are determined in accordance with the following figure.

In case of A4R width reception (Max. reduction rate a = 0.96)

Reception length	Appropriate paper	Selection order	In case of selecting A4R recording paper	In case of selecting B4R recording paper	In case of selecting A3R recording paper
R_length < A4R*(1/a)	A4R	A4R -> B4R -> A3R	Not dividing *0.96 times	Not dividing * 0.96 times	Not dividing * 0.96 times
A4R*(1/a) < R_length < B4R*(1/a)	B4R	B4R -> A3R -> A4R	0.90 or less: dividing 0.90 or more: reducin	Not dividing * 0.96 times	Not dividing * 0.96 times
B4R*(1/a) < R_length < A3R*(1/a)	A3R	A3R -> B4R -> A4R	Dividing *0.96 times	0.90 or less: dividing 0.90 or more:reducing	Not dividing * 0.96 times
A3R*(1/a) < R_length	A3R	A3R -> B4R -> A4R	Dividing *0.96 times	Dividing * 0.96 times	0.90 or less: dividing 0.90 or more: reducing

In case of B4R width reception (Max. reduction rate a = 0.96)

Appropriate paper	Selection order	Selection order	In case of selecting A4R (B5) recording paper	In case of selecting B4R recording paper	In case of selecting A3R recording paper
R_length < B5*(1/a)	B5	B5R -> B4R -> A4R -> A3R	Not dividing * 0.96 times	Not dividing * 0.96 times	Not dividing * 0.96 times
R_length < B4*(1/a)	B4R	B4R -> A3R -> A4R	Not dividing * 0.82 times	Not dividing * 0.96 times	Not dividing * 0.96 times
B4R*(1/a) < R_length < A3R*(1/a)	A3R	A3R -> B4R -> A4R	Dividing * 0.82 times or less	0.90 or less: dividing 0.90 or more:reducing	Not dividing * 0.96 times
A3R*(1/a) < R_length	A3R	A3R -> B4R -> A4R	Dividing * 0.82 times or less	Dividing * 0.96 times	0.90 or less: dividing 0.90 or more: reducing

In case of A3R width reception (Max. reduction rate a = 0.96)

Reception length	Appropriate paper	Selection order	In case of selecting A4R and A4 recording paper	In case of selecting B4R recording paper	In case of selecting A3R recording paper
R_length < A4*(1/a)	A4	A4R -> B4R -> A3R	Not dividing * 0.96 times	Not dividing * 0.96 times	Not dividing * 0.96 times
R_length < A3R*(1/a)	B4R	B4R -> A3R -> A4R	Dividing (rotating) * 0.96 times	Not dividing * 0.96 times	Not dividing * 0.96 times
A3R* < R_length	A3R	A3R -> B4R -> A4R	Dividing (rotating) * 0.96 times	Dividing * 0.86 times or less	0.90 or less: dividing 0.90 or more:reducing

NOTE:A4R*(1/a) means (297-6) * (1/0.96) = 303mm

8.3.2 Cassette / Paper Selection

The cassette and paper selection is performed by using two parameters of the key operator mode.

"Rx paper selection" ..... Auto, A4 priority, A4 fix, B4 priority, B4 fix, A3 priority, A3 fix ..... a

"Tray selection to Rx" ..... Auto, Tray 1, Tray 2, Tray 3 and Tray 4 ..... b

When "b" is fixed to tray 1, 2, 3 or 4, "a" becomes invalid.

Only when "b" is set to Auto, "a" becomes valid.

Bypass cannot be specified as fix-tray.

Page dividing function becomes invalid when the tray is fixed.

8.3.3 Forced Memory Reception

The function to enable to print out by operations without printing out documents at reception in the FAX communications.

Related settings

1) Forced memory reception function
- Set in the key operator-Special setting.
- When this setting is set to OFF, display and actions related to the forced memory reception are not performed. In addition, you can not perform operations. If this setting is not set, the following forced memory reception function used is also set to disabled.

2) Forced memory reception function use
- Set in the key operator setting.
- When this setting is set to disabled, the forced memory reception actions are not performed at reception. In addition, you can not display, erase and print the forced memory reception documents. The forced memory reception documents are displayed on the main menu irrelevant to this setting.

3) Forced memory reception password
- Four digits (four-digit number, default 0000)
- Set in the key operator setting.
- This setting is required to display, delete or print the forced memory reception documents.

Operation

Necessary conditions for this function
- When there is the forced memory reception function, and it is used, the forced memory reception action is performed.

Line seizure
- It is possible to receive up to 100 forced memory reception jobs including the normal reception and the substitute reception. When 100 forced memory reception jobs are received, machine will not catch the line. (Except the case that the polled transmission documents and bulletin board documents are registered.)

Reception

- When the reception is performed in the forced memory reception mode, printing is not performed even with recording paper and the reception is performed in memory as the forced memory reception documents.
- The same as in the polled reception and manual reception.
- The auto forwarding setting is neglected in this mode, and the forced memory reception is performed.
- When SUB is received, related applications will start.

Setting change

- When there are received forced memory reception documents, even if the forced memory reception setting is set to invalid in the key operator mode, the forced memory reception file is not printed.
- For printing, the forced memory reception setting is required to be set to "ON."

8.3.4 Closed Reception (Junk FAX)

The closed reception function used only at the time of the reception by using the F-code SID signal.

Password

- Fixed to four digits (Key operator setting, 0 to 9, * and #)

Note: You can not use this function with the F-code communications.

8.4 Management Function

8.4.1 Operation without the Key Counter

Related settings

1) Transmission without the key counter

- Set in the Key operator-Special setting.
- FAX transmission is inhibited when this setting is set to OFF and there is no key counters (default).

FAX operations without the key counter

The following show the settings without the key counter and whether operations / actions start requests are accepted or not.

Operation	When disabled	When enabled	Remarks
Transmission	No	Yes	
Polling reception	No	Yes	
Manual reception	No	Yes	
Auto FAX communication / Printer data reception / Auto print	Yes	Yes	
Report printing in the application function	No	No	
Report printing in the key operator (FAX)	No	No	
Report printing in 36 modes	No	No	
Report print in the key operator (copy)	No	No	

Pulling out the key counter during FAX operations

The following show settings and their actions when the key counter is pulled out during actions

Actions	When disabled	When enabled	Remarks
While scanning the quick memory transmission	Stop scanning (transmitted those already scanned)	No influence	
While scanning the memory transmission	Stop scanning (does not transmit)	No influence	
FAX communication	No influence	No influence	
While printing the FAX reception	No influence	No influence	
While printing the printer	No influence	No influence	
While printing the auto report	No influence	No influence	
During report print of the application function	No influence	No influence	
During report print of the key operator (FAX)	No influence	No influence	
During report print of 36 modes	Follows DIPSW 1-0	Follows DIPSW 1-0	
While report print of the key operator mode	Follows DIPSW 1-0	Follows DIPSW 1-0	

8.5 Service Function

8.5.1 F-Code Forwarding Transmission

The function to forward the received documents to the remote stations designated by SID. This function is used to make sure the proper transmission when you change the parameters related to FAX communications from the KRDS host. General users do not use this function but only service persons use this. Depending on contents of SUB and SID at reception, reception to the forwarding BOX is automatically performed, after reception the line is broken, and the contents of the forwarding BOX is automatically sent to a remote stations of the dial No. by using memory transmission.

Related settings

1) F code forwarding function enable / disabled (address parameter 060053 bit6)

- Set in KRDS.
- Set by using the function parameter setting or the KRDS remote host.
  When this setting is set to disabled, the F code forwarding action is not performed.

Forwarding BOX specifications

1) Forwarding BOX ..... Only one. Resident
2) Forwarding BOX No. ..... Represented by a three-digit number.
   On the SUB signal, treated as 999. Filled with spaces.
3) Forwarding password ..... Four digits.
   On the SID signal, treated as ****. Filled with spaces.
4) Forwarding No. ..... Made of one symbol (#) plus numbers (telephone number)
   On the SID signal, used with the transfer password.
5) No. of reception jobs to be stored in the forwarding BOX
   ..... One job only
6) Forwarding BOX Name ..... No
7) Erasure after forwarding ..... always erased

Procedure on the transmitter

1 In order to use this function, a F code compliant machine and a KRDS host are required as transmitters
2 Set the F code transfer function enabled / disabled setting to enabled in the KRDS host.
3 On the F code compliant machine, designate SUB = "999" and SID = "****#0123456789" and transmit. In case of the FK-101, designate the sub address and the password of the relay request transmission.
4 999 is fixed and 0123456789 is a FAX number of a remote station.

Actions on the receiver side

1 When SUB is 999, check the following conditions. If possible, perform the memory reception and complete communications. Then forwards received documents to the remote station designated by SID.
2 The following are conditions to perform forwarding transmission actions. If these conditions are not satisfied, a communication error occurs. Refer to the error code section for the error code.
   - The first four digits of SID are **** and the next is #.
   - The F code forwarding function is enabled.
   - There are no F-code forwarding documents.
3 After reception, the F-code forwarding function setting is automatically set to disabled.
4 At the time of the F-code reception, the forced memory reception, PC reception and auto transfer settings are neglected.

Forwarding transmission

1 At the time of the F-code transfer transmission, the error page redial, etc. are performed as in the case of normal transmission.
2 At the time of the F-code transfer transmission, the transmission result report is not output.

Others

1 When the main power is turned OFF / ON during the forwarding transmission waiting, the forwarding transmission is erased.
2 Writing on the journal at the time of the F code transfer is performed by using FP. You can switch the journal data logging to ON or OFF. The default setting is logging OFF. When logged, FWD-KRDS is displayed in the journal remarks.
   (address parameter 120002 bit7)

HOME

9

Description of Operation

HOME

9.1 Dual Access Matrix

The table shows YES/NO or conditions to accept another job while one job is operating.

Conditions to Execute Two Jobs

Secondary job \ Primary Job		-	Copier			
		In Case of No Active Job	While Scanning Normal Copy Documents	While Scanning Image Process Copy Documents (▼1)	While Printing Normal Copy	While Printing Image Process Copy (▼2)
Copier	Normal Copy Operation	○	×	×	○ (▼4)	○ (▼4)
	Image Process Copy Operation	○	×	×	○ (▼4)	×
	Normal Copy Auto Output	○	○	○	×	×
	Image Process Copy Auto Output	○	○	×	×	×
FAX	Quick Memory Transmission Document Scanning Operation	○	×	×	○	○ (▼6)
	Memory Transmission Document Scanning Operation	○	×	×	○	○ (▼6)
	Polling Reception (Reservation) Operation	○	×	×	○	×
	Auto Calling Communication (Memory Transmission, Quick Memory Transmission and Polling Reception), Reception, Auto Reception	○	○	○	○	○
	Manual Transmission Operation	○	×	×	○	×
	Manual Reception Operation	○	×	×	○	○
	Auto Page/ Job Reception Print	○	○	×	×	×
	Report Print Operation	○	×	×	×	×
	Auto Report Print	○	○	×	×	×
Printer	Auto Download	○	○	○	○	×
	Auto Printer Print	○	○	○	×	×

Secondary Job \ Primary Job		FAX				Printer	
		While Scanning Quick Memory Transmission	While Scanning FAX Documents	During Memory Transmission/ Page Reception/ Job Reception	While Printing FAX / Report	During Printer Download	During Printer Printing
Copier	Normal Copy Operation	×	×	○	○ (▼4)	○	○ (▼4)
	Image Process Copy Operation	×	×	○	×	○	○ (▼4)
	Normal Copy Auto Output	○	○	○	×	○	×
	Image Process Copy Auto Output	×	×	○	×	×	×
FAX	Quick Memory Transmission Document Scanning Operation	×	×	○ (▼4)	×	○	○
	Memory Transmission Document Scanning Operation	×	×	○ (▼4)	○	○	○
	Polling Reception (Reservation) Operation	×	×	○ (▼3)	○	○	○
	Auto Calling Communication (Memory Transmission, Quick Memory Transmission and Polling Reception), Reception, Auto Reception	○	○	×	○	○	○
	Manual Transmission Operation	×	×	×	○	○	○
	Manual Reception Operation	×	×	×	○	○	○
	Auto Page/ Job Reception Print	○	○	○	×	○	×
	Report Print Operation	×	×	○ (▼5)	×	○	×
	Auto Report Print	×	×	○ (▼5)	×	○	×
Printer	Auto Download	○	○	○	○	×	○
	Auto Printer Print	○	○	○	×	○	×

(▼1) Rotation copy, synthesis, memory copy, etc.

(▼2) Booklet, alternate output, memory copy with rotations, single step, etc.

(▼3) Instant communications are impossible. In this case, reservations are required.

(▼4) Only scanning is performed.

(▼5) Trace list is impossible.

(▼6) A4 rotating transmission is not possible. (A4R, B4 and A3 are possible.)

HOME

Appendix

HOME

Appendix 1 Wiring Diagram

A1-1 Overall Wiring Diagram

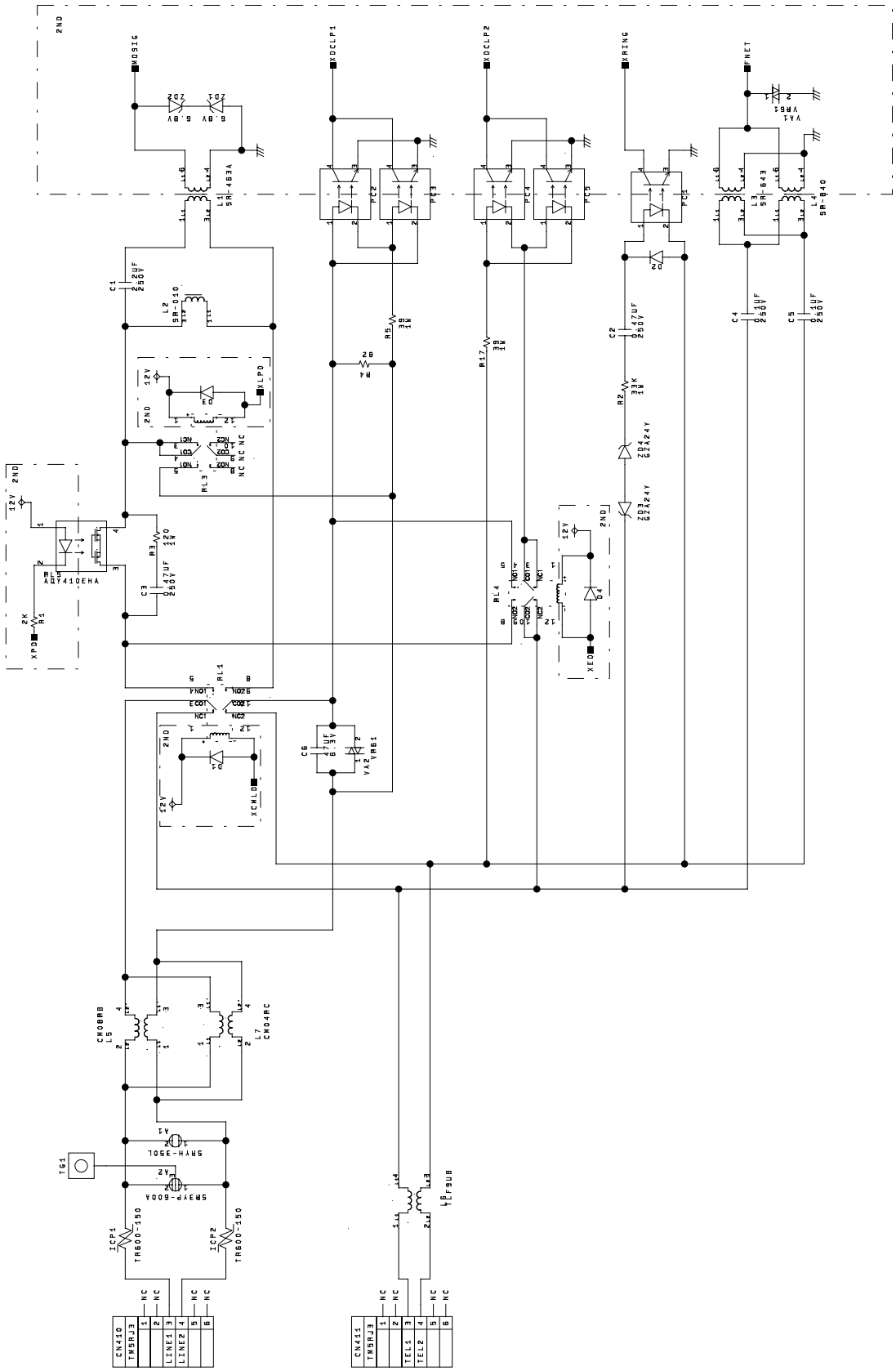
Refer to 7020 Service Handbook

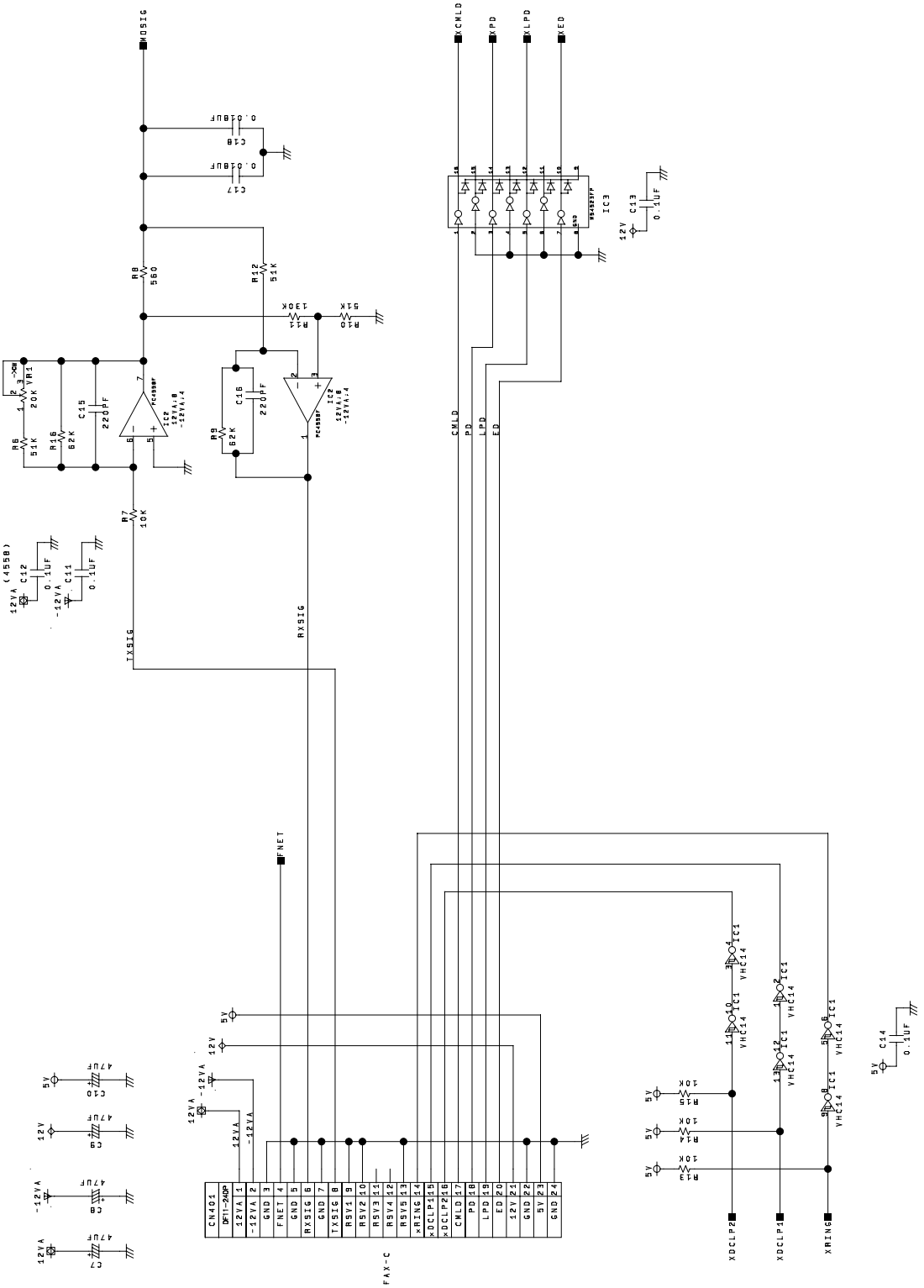
A1-2 NCU

(1) Japan

HOME

(1) Japan




MODSIG
0.018UF
C18
0.018UF
C17
R8
560
R12
51K
130K
R11
51K
R10
20K VR1
R6
51K
R16
62K
C15
220PF
IC2
R7
10K
R9
62K
C16
220PF
IC2
12VA (455B)
C12
0.1UF
-12VA
C11
0.1UF
TXSIG
RXSIG
FNET
CMLD
PD
LPD
ED
IC3
C13
0.1UF
12V
5V
-12VA
CN401
DF11-24DP
12VA 1
-12VA 2
GND 3
FNET 4
GND 5
RXSIG 6
GND 7
TXSIG 8
RSV1 9
RSV2 10
RSV3 11
RSV4 12
RSV5 13
xRING 14
xDCLP1 15
xDCLP2 16
CMLD 17
PD 18
LPD 19
ED 20
12V 21
GND 22
5V 23
GND 24
FAX-C
C10
47UF
C9
47UF
C8
47UF
C7
47UF
IC1
VHC14
R15
10K
R14
10K
R13
10K
C14
0.1UF
XDCLP2
XDCLP1
XRING

HOME

Appendix 2 Address Parameter List

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
Key operator (0 to 3)	0b0000	Redial interval					Redial interval (min., HEX, 0 to 15)				0x03	0x03	0x03
Key operator (0 to 2)	0b0001	No. of busy redials						No. of busy redials (No., HEX, 0 to 7)			0x03	0x03	0x03
Key operator (0 to 2)	0b0002	No. of error redials						No. of error page redials (No., HEX, 0 to 7)			0x03	0x03	0x03
Key operator (0 to 2) Key operator-Special setting (4)	0b0003	Settings related to FAX memory		V 34 mode at the time of error page redial 0: Inhibited 1: Enabled	File > ERDH switching 0: Enabled 1: Inhibited	Re-send of the first page at the time of error page redial		FAX memory size 000: 2MB 001: 4MB 010: 6MB 011: 8MB 100: 10MB 101: 12MB 110: 14MB 111: 16MB			0x00	0x00	0x00
Key operator (3 and 5) Key operator-Special setting (2, 6 and 7)	0b0004	FAX communication HP	Inhibit to transmit without the key counter 0: Yes 1: No	Inhibit to print without the key counter 0: Yes 1: No	Quick memory transmis-sion		Reception mode 0: Auto 1: Manual	Reception without BOX 0: Commu-nication error 1: Normal reception	Interna-tional transmission	ECM transmis-sion	0x21	0x21	0x21
Key operator-Special setting (0 and 1) Key operator (7)	0b0005	Forwarding	PC-Fax reception 0: No 1: Yes	Two sided recording of FAX 0: Possible 1: Impossible					Forwarding 00: No Forwarding 01: Forwarding + Always (Print / Upload) 10: Forwarding + only when not delivered (Print / Upload) 11: Not defined		0x00	0x00	0x00
Key operator	0b0006	FAX scan HP 1	RADF selective item HP 00: One sided 01: Two sided 10: One sided to Two sided		Resolution HP 00: Normal 01: Fine 10: S-Fine		Density HP 00: Auto (EE) 01: Lighter 10: Normal 11: Darker		Image quality HP 00: Line/photo 01: Line 10: Photo		0x01	0x01	0x01
Key operator-Special setting (6 and 7)	0b0007	FAX scan HP 2	Fame erasure HP 01: 5mm 10: 10mm 11: 15mm				N page setting of "One sided until N page" in the RADF scanning mode selection				0x41	0x41	0x41

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
Key operator-Special setting (0, 1 and 2)	0b0008	FAX scan HP 3	Two-sided Original					Original scanning mode 00: Normal 01: Mixed size 10: RADF irregular		Scanned from the right side at book transmission	0x04	0x04	0x04
Key operator	0b0009	FAX reception auto output setting	Two-sided recording	2-in-1 recording	Inched recording paper selection	Page unit recording	Face-up output	Page division recording	Output tray HP 00: Tray 1 01: Tray 2 10: Tray 3 11: Tray 4		0x03	0x03	0x03
Key operator (2 to 5) Key operator-Special setting (6 and 7)	0b000a	FAX reception auto output setting 2	STOP is effective for printing during reception	STOP is effective for printing after reception	Inched paper priority 0: OFF 1: ON	Paper tray fixing 0: Tray 1 1: Tray 2 2: Tray 3 3: Tray 4 4: Auto			LG is used.	LT is used.	0xc0	0xc0	0xc0
Key operator (0,1and 3 to 6) Key operator-Special setting (7)	0b000b	Report output setting	STOP is effective for auto-printing of reports.	Tray selection for reports output (HP at manual output) 000: Bypass 001: Tray 1 (Upper) 010: Tray 2 (Lower) 011: Tray 3 (DB upper) 100: Tray 4 (DB middle) 101: Tray 5 (DB lower) Others: Tray 2 (Lower)			Face-up output		Output tray HP 00: Tray 1 01: Tray 2 10: Tray 3 11: Tray 4		0xa3	0xa3	0xa3
Key operator	0b000c										0x00	0x00	0x00
Key operator	0b000d	Setting of recording paper size for reception	0x08: A3R 0x09: B4R 0x0F: A4 0x11: 8.5×14R 0x1F: 8.5×11 0x18: 11×17R								0x0f	0x0f	0x0f
-	0b000e	Target reduction rate when A4 / LTR is used	Target reduction rate when A4 / LT is used (HEX and unit: %)								0x5a	0x5a	0x5a
-	0b000f	Other target reduction rate	Other target reduction rate (HEX and unit: %)								0x5d	0x5d	0x5d
-	0b0010	Original size HP	0x02:F4R 0x03:B5R 0x04:A5 0x06:A4R 0x07:A5R 0x08:A3R 0x09:B4R 0x0A:B6R 0x0B:Postcard (A6R) 0x0D:B5 0x0F:A4 0x11:8.5×14R 0x15:8.5×11R 0x17:5.5×8.5R 0x18:11×17R 0x1B:5.5×8.5 0x1F:8.5×11 0x20:ABSpecisl 0x30:InchSpecial								0x06	0x06	0x06
-	0b0011	Density (lighter) HP	01:D4 to 09:L4								0x09	0x09	0x09
-	0b0012	Density (normal) HP	01:D4 to 09:L4								0x05	0x05	0x05
-	0b0013	Density (darker) HP	01:D4 to 09:L4								0x01	0x01	0x01

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
Key operator (3 to 7)	0b0014	HP for FAX main menu	Remote station list screen selection 00: Group 01: ABBR 10: Redial		FAX main menu selection 00: Tel book 01: Document setting 10: Key pad		Automatically switching screens at reception 0: Yes 1: No		RADF default 0: RADF 1: Platen		0x01	0x01	0x01
Key operator-Special setting (0)	0b0015	BOOT rewrite on FAX ISW								Boot area rewrite 0: No 1: Yes	0x00	0x00	0x00
Key operator-Special setting (0 to 2)	0b0016	Rotation setting HP						B5R 1: Yes 0: No	Letter 1: Yes 0: No	A4 1: Yes 0: No	0x03	0x03	0x03
Key operator (0 and 4 to 7)	0b0017	HP for FAX group main menu	Group No. 0x00: Program 0x01: Group 1 0x02: Group 2							Group No. button display 0: No 1: Yes	0x00	0x00	0x00
Key operator (0 and 4 to 7)	0b0018	HP for FAX abbr main menu	Display mode 0x00: A, 0x01: D, 0x02: G, 0x03: J, 0x04: M, 0x05: P, 0x06: T, 0x07: W, 0x08: 0x09: 0x0a:							Abbreviated No. button display 0: No 1: Yes	0x00	0x00	0x00
-	0b0019	Not used									0x03	0x03	0x03
-	0b001a	Not used									0x01	0x01	0x01
-	0b001b	Not used									0x03	0x03	0x03
-	0b001c	Not used									0x02	0x02	0x02
Key operator	0b001d	Time for auto reset	Time for auto reset 0: OFF 1: 30 sec. 2: 60 sec. 3: 90 sec. 4: 120 sec. 5: 150 sec. 6: 180 sec. 7: 210 sec. 8: 240 sec. 9: 270 sec. 10: 300 sec.								0x01	0x01	0x01
Key operator-Special setting	0b001e	Error code display time	Error code display time (n sec display / error Hold display) 0: Error display Hold 0x01 to 0xff: error code display time [sec] n is between 10 and 250 in steps of 10.								0x14	0x14	0x14
-	0b001f	Reduction rate used in APS	Received image reduction rate at APS								0x5d	0x5d	0x5d
Key operator	0b0020	Minimum reduction rate	Received image reduction rate at APS (A3 and B4 width)								0x60	0x60	0x60

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	0b0021	(fixed value)									0x00	0x00	0x00
-	0b0022	(fixed value)									0xff	0xff	0xff
-	0b0023	(fixed value)									0xf0	0xf0	0xf0
-	0b0024	(fixed value)									0xf0	0xf0	0xf0
-	0b0025	(fixed value)									0xff	0xff	0xff
-	0b0026	(fixed value)									0xff	0xff	0xff
-	0b0027	(fixed value)									0xf0	0xf0	0xf0
-	0b0028	DRAM backup								Backup 0: Yes 1: No	0x00	0x00	0x00
-	0b0029	FAX frame erasure setting	RADF frame erasure setting (4 bits) 00 to 05 mm: Default 2 mm				Platen frame erasure setting (4 bits) 00 to 05 mm: Default 2 mm				0x22	0x22	0x22
-	0b002a to 0b0050	Phone number for forwarding	ASCII 38 digits + NULL								0x00	0x00	0x00
Key operator-Special setting	0b0051	Key operator display setting	Relay display 0: Yes 1: No	Confidential display 0: Yes 1: No	Restored transmis-sion display 0: Yes 1: No	Forced memory reception display 0: Yes 1: No	Remote station No. / Name display 0: Yes 1: No	Closed communica-tion display 0: Yes 1: No	Remote reception display 0: Yes 1: No	Dial-in display 0: Yes 1: No	0x00	0x00	0x00
Key operator-Special setting (0)	0b0052	Key operator display setting 2								Instant batch transmission display 0: Yes 1: No	0x00	0x00	0x00
Key operator-Special setting (7)	0b0053	HP for FAX screen display	One-touch option 0: OFF 1: ON	F-code forwarding test 0: Yes 1: No					Other than key pad for F code entry 0: Inhibited 1: Allowed	One-touch timer calling 0: No 1: Yes	0x40	0x40	0x40
Key operator	0b0054 to 0b0057	Forced memory reception password	ASCII 4 digits ALL								0x20	0x20	0x20

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
Key operator (0 to 3)	0b0058	Restored transmission	Debug mode 0: OFF 1: ON (3 minutes)				File holding time 0000: 12 hours 0001: 24 hours 0010: 48 hours 0011: 72 hours				0x00	0x00	0x00
Key operator (0 to 3)	0b0059	F code report setting					Relay request report output 0: No 1: Yes	Relay result report output 0: No 1: Yes	Bulletin board polled transmission report output 0: No 1: Yes	Confidential reception report output 0: No 1: Yes	0x0f	0x0f	0x0f
-	0b005a to 0b007f	Reserved area									0x00	0x00	0x00
-	0b0080 to 0b008f	Reserved area									0x00	0x00	0x00

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	0e0000	Error line Judgment	RTP transmis-sion					No. of continuous error lines judgment	Rate of error lines judgment	No. of error lines judgment	0x01		
-	0e0001	No. of error lines - very good	No. of very good judgment lines (HEX) When No. of error lines ≤ VeryGoodErrorNum, MCF is transmitted.								0x10		
-	0e0002	No. of error lines - good	No. of good judgment error lines (HEX) When VeryGoodErrorNum < No. of error lines ≤ GoodErrorNum, RTP is transmitted.								0x40		
-	0e0003	No. of error lines - bad	No. of bad judgment error lines (HEX) When GoodErrorNum < No. of error lines ≤ BadErrorNum, RTN is transmitted. When No. of error lines > BadErrorNum, it is considered to be error line over.								0x80		
-	0e0004	Rate of error lines - very good	Rate of very good judgment error lines (HEX, %) Error line rate ≤ VeryGoodErrorPercent, MCF is transmitted.								0x05		
-	0e0005	Rate of error lines - good	Rate of good judgment error lines (HEX, %) VeryGoodErrorPercentage < Error line rate ≤ GoodErrorPercent, RTP is transmitted. Error line rate > GoodErrorPercent, RTN is transmitted.								0x0a		
-	0e0006	No. of continuous error lines - bad ,normal	No. of bad judgment sequential error lines (HEX) Normal No. of sequential error lines ≤ ErrorContNormal, MCF is transmitted. No. of sequential error lines > ErrorContNormal, RTN is transmitted.								0x03		
-	0e0007	No. of continuous error lines - bad ,fine	No. of bad judgment sequential error lines (HEX) Fine No. of sequential error lines ≤ ErrorContNormal, MCF is transmitted. No. of sequential error lines > ErrorContNormal, RTN is transmitted.								0x06		
-	0e0008	No. of continuous error lines - bad ,300dpi	No. of bad judgment sequential error lines (HEX) 300 dpi No. of sequential error lines ≤ ErrorContNormal, MCF is transmitted. No. of sequential error lines > ErrorContNormal, RTN is transmitted.								0x09		
-	0e0009	No. of continuous error lines - bad ,s-fine	No. of bad judgment sequential error lines (HEX) Superfine No. of sequential error lines ≤ ErrorContNormal, MCF is transmitted. No. of sequential error lines > ErrorContNormal, RTN is transmitted.								0x0c		
Key operator-Special setting	0e000a	Transmission ATT	Tone signal / FSK transmittion ATT (HEX) in steps of 1 dBm (0 to 15 dBm)				High speed signal transmission ATT (HEX) in steps of 1 dBm (0 to 15 dBm)				0xAA		
Key operator-Special setting (0 to 3)	0e000b	CED transmission ATT					CED / ANS transmission ATT (HEX) in steps of 1 dBm (0 to 15 dBm)				0x0A		
-	0e000c	Reception ATT									0x00		
Key operator-Special setting (0 and 1)	0e000d	CD / SED ON level							CD / SED On level [dBm] 00: 33 01: 38 10: 43 11: 48		0x03		
Key operator-Special setting (4 and 5)	0e000e	Transmission cable amplitude EQL			Transmission cable EQL 00: 0 dB 01: 4 dB 10: 8 dB 11: 12dB						0x00		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
Key operator-Special setting (4 and 5)	0e000f	Reception cable amplitude EQL			Reception cable EQL 00: 0dB 01: 4dB 10: 8dB 11: 12dB						0x00		
Key operator-Special setting (0 and 2)	0e0010	EP tone addition						V17	V33	V29	0x06		
-	0e0011	Operator call									0x00		
-	0e0012	CED transmission frequency								CED transmission frequency 0: 2100Hz 1: 1100Hz	0x00		
-	0e0013	TSI / CSI / CIG parameter	TSI transmission 0: No 1: Always	CSI transmission 0: No 1: Always	CIG transmission 0: No 1: Always					Character ID is put on CSI.	0xe0		
Key operator-Special setting (6)	0e0014	Error processing	NonECM Phc 8 minute Limited timer 0: No 1: Yes	Selection of ""-"" at the beginning of dial 0: OFF 1: ON	RTN reception 0: Step down 1:Disconnect			DCN is transmitted at the time of T200.		DCN is transmitted by using STOP in ph.C.	0x00		
-	0e0015	Step up / down	Severe TCF check								0x00		
-	0e0016	ECM parameter									0x20		
-	0e0017	T1 / 2 operator call timer			TEL / FAX switching mode 00: No 01: Simple mode (T1 / T2 operator call) 10: Normal (RBT transmission)						0x2A		
Key operator-Special setting (0 to 3 and 5 to 7)	0e0018	Ring Back Tone parameter	RBT type 000: No 001: Japan 010: US 011: UK 100: Germany 101 to 111: Others			When Tel / Fax is switched, CED is transmitted.	RBT transmission level (HEX) 0 to 15 dBm				0x08		
Key operator-Special setting	0e0019	Delay timer between DCS-TCF	Delay timer between DCS and TCF(in steps of 10 ms, HEX)								0x08		
Key operator-Special setting	0e001a	Delay timer between PIX - PMC	Delay timer between PIX and PMC (in steps of 10 ms, HEX)								0x08		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
Key operator-Special setting	0e001b	Delay timer between CED - DIS	Delay timer between CED and DIS (unit: 10ms, HEX)								0x08		
Key operator-Special setting	0e001c	T1 timer for calling	T1 timer (unit: 1 sec., HEX)								0x23		
Key operator-Special setting	0e001d	T1 timer for called	T1 timer (unit: 1 sec., HEX)								0x23		
-	0e001e	German specifications					Conversation reservation German specifications	When a DCN reception error is neglected, line disconnect.	CD off time is within 6 seconds in ph. C	When DIS is received to DTC, line disconnect.	0x00		
Key operator-Special setting (6 and 7)	0e001f	International com mode operation	No. of DIS waiting 0: 1 1: 2	International communi-cation 0: No 1: Yes							0x40		
Key operator-Special setting (0, 1, 3 and 4)	0e0020	Starting speed in international mode (V.29 modem)				9600/ V29bps	7200/ V29bps		4800/ V27bps	2400/ V27bps	0x02		
Key operator-Special setting (4 to 7)	0e0021	Starting speed in international mode (V.17 or V.33 modem)	14400bps / V17	12000bps / V17	9600bps / V17	7200bps / V17	14400bps / V33	12000bps / V33			0x10		
-	0e0022	Ph.C reception limited time	Maximum reception time of one page (unit: minute, HEX) 1 to 255 minutes								0x0f		
Key operator-Special setting	0e0023	Timer between EOLs	Timer between EOLs (unit: 100ms, HEX)								0x82		
-	0e0024	Timer between frames	Timer between frames (unit: 1sec, HEX)								0x23		
-	0e0025	CD OFF timer	CD OFF timer (unit: 100 ms, HEX)								0x14		
-	0e0026	CD ON integration time	CD ON integration time (unit: 100 ms, HEX)								0x06		
Key operator-Special setting (0 to 3 and 7)	0e0027	Symbol rate maximum allowable value	V 34 control CH data rate 0: 1200 1: 2400				Symbol rate maximum allowable value 0000:2400 0001:Reserved 0010:2800 0011:3000 0100:3200 0101:3429				0x05		
Key operator-Special setting	0e0028	ANSam signal transmission time	ANSam signal transmission time (unit: 100ms, HEX)								0x28		
-	0e0029	CI signal transmission time	CI signal transmission time (unit: 100ms, HEX)								0x05		
-	0e002a	High-speed signal transmis-sion waiting delay timer	High-speed signal transmission waiting delay timer (unit: 5ms) (CFR - PIX / MPS - PIX / CTR - PIX)								0x37		
-	0e002b	Ph. C top dummy data transmitting time	Ph. C top dummy data transmitting time (unit: 5ms) (dummy data at non ECM / pre-amble of ECM)								0x04		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	0e002c	RTC counter						EOL counter judged as RTC 000:EOL*2 001:EOL*3 010:EOL*4 011:EOL*5 100:EOL*6			0x01		
-	0e002d	HDLC frame parameter									0x00		
-	0e002e	Closed communication						Polled transmis-sion	Reception		0x00		
-	0e002f to 0e0042	Reserved									All 0		
Key operator	0e0043 to 0e0056	Numeric ID [20]	ASCII [20] When ID is less than 20 digits, justify to the left and insert space at the top. (no NULL terminators)								All 0x20		
Key operator-Special setting	0e0057 to 0e006a	Machine password [20]	ASCII [20] When ID is less than 20 digits, justify to the left and insert space at the top. (no NULL terminators)								All 0x20		
-	0e006b to 0e007e	KRDS password [20]	ASCII [20] When ID is less than 20 digits, justify to the left and insert space at the top. (no NULL terminators)								All 0x20		
-	0e007f	PBX dial tone detection frequency upper limits	PBX dial tone detection frequency upper limits (unit: 10Hz, HEX)								0x31		
-	0e0080	PBX dial tone detection frequency lower limits	PBX dial tone detection frequency lower limits (unit: 10Hz, HEX)								0x1f		
-	0e0081	PBX dial tone tone detection time	PBX dial tone detection time or ON time max value (unit: 20ms, HEX)								0x32		
-	0e0082	PBX dial tone ON time min. value	PBX dial tone ON time min. value (unit: 20ms, HEX)								0x00		
-	0e0083	PBX dial tone OFF time max value	PBX dial tone OFF time max. value (unit: 20ms, HEX)								0x00		
-	0e0084	PBX dial tone OFF time min value	PBX dial tone OFF time min. value (unit: 20ms, HEX)								0x00		
-	0e0085	PBX dial tone tone waiting time	PBX dial tone waiting time or prepause time (unit: 1 sec., HEX)								0x03		
-	0e0086	PBX dial tone instantaneous break detection time	Instantaneous break detection time (unit: 20ms, HEX) or No. of tone detection (No., HEX)								0x00		
-	0e0087	PBX dial tone frequency synchronization parameter	(HEX)								0x03		
-	0e0088	1st dial tone detection frequency upper limits	1st dial tone detection frequency upper limits (unit: 10Hz, HEX)								0x31		
-	0e0089	1st dial tone detection frequency lower limits	1st dial tone detection frequency lower limits (unit: 10Hz, HEX)								0x1f		
-	0e008a	1st dial tone tone detection time	1st dial tone detection time or ON time max value (unit: 20ms, HEX)								0x32		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
	0e008b	1st dial tone ON time min. value	1st dial tone ON time min. value (unit: 20ms, HEX)								0x00		
-	0e008c	1st dial tone OFF time max value	1Ist dial tone OFF time max value (unit: 20ms, HEX)								0x00		
-	0e008d	1st dial tone OFF time min. value	1st dial tone OFF time min. value (unit: 20ms, HEX)								0x00		
-	0e008e	1st dial tone tone waiting time	1st dial tone tone waiting time or prepause time (unit: 1 sec, HEX)								0x03		
-	0e008f	1st dial tone instantaneous break detection time	Instantaneous break detection time (unit: 20ms, HEX) or no. of tone detection (no., HEX)								0x00		
-	0e0090	1st dial tone frequency synchronization parameter	(HEX)								0x03		
-	0e0091	2nd dial tone detection frequency upper limits	2nd dial tone detection frequency upper limits (unit: 10Hz, HEX)								0x31		
-	0e0092	2nd dial tone detection frequency lower limits	2nd dial tone detection frequency lower limits (unit: 10Hz, HEX)								0x1f		
-	0e0093	2nd dial tone tone detection time	2nd dial tone detection time or ON time max value (unit: 20ms, HEX)								0x08		
-	0e0094	2nd dial tone ON time min. value	2nd dial tone ON time min. value (unit: 20ms, HEX)								0x02		
-	0e0095	2nd dial tone OFF time max value	2nd dial tone OFF time max value (unit: 20ms, HEX)								0x0a		
-	0e0096	2nd dial tone OFF time min value	2nd dial tone OFF time min value (unit: 20ms, HEX)								0x04		
-	0e0097	2nd dial tone tone waiting time	2nd dial tone waiting time or prepause time (unit: 1sec, HEX)								0x03		
-	0e0098	2nd dial tone instantaneous break detection time	Instantaneous break detection time (unit: 20Hz, HEX) or no. of tone detection (no., HEX)								0x03		
-	0e0099	2nd dial tone frequency synchronization parameter	(HEX)								0x03		
-	0e009a	3rd dial tone detection frequency upper limits	3rd dial tone detection frequency upper limits (unit: 10Hz, HEX)								0x00		
-	0e009b	3rd dial tone detection frequency lower limits	3rd dial tone detection frequency lower limits (unit: 10Hz, HEX)								0x00		
-	0e009c	3rd dial tone frequency synchronization parameter	(HEX)								0xff		
	0e009d	Busy tone detection frequency upper limits	Detection frequency upper limits (unit: 10Hz, HEX)								0x31		
	0e009e	Busy tone detection frequency lower limits	Detection frequency lower limits (unit: 10Hz, HEX)								0x1f		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	0e009f	Busy tone ON time max. value	Busy tone ON time max. value (unit: 20ms, HEX)								0x1e		
-	0e00a0	Busy tone ON time min. value	Busy tone ON time min. value (unit: 20ms, HEX)								0x14		
-	0e00a1	Busy tone OFF time max value	Busy tone OFF time max. value (unit: 20ms, HEX)								0x1e		
-	0e00a2	Busy tone OFF time min value	Busy tone OFF time min. value (unit: 20ms, HEX)								0x14		
-	0e00a3	Busy tone	Not used								0x00		
-	0e00a4	No of busy tone detection									0x00		
-	0e00a5	Busy tone frequency synchronization parameter	(HEX)								0x03		
-	0e00a6	Ringer detection frequency upper limits	Ringer detection frequency upper limits (unit: 1Hz, HEX)								0x46		
-	0e00a7	Ringer detection frequency lower limits	Ringer detection frequency lower limits (unit: 1Hz, HEX)								0x0c		
-	0e00a8	Ringer ON time max. value	Ringer ON time max. value (unit: 20ms , HEX)								0x00		
-	0e00a9	Ringer ON time min. value	Ringer ON time min. value (unit: 20ms , HEX)								0x0a		
-	0e00aa	Ringer OFF time max value	Ringer OFF time max. value (unit: 100ms , HEX)								0x3c		
Key operator-Special setting	0e00ab	Ringer OFF time min value	Ringer OFF time min. value (unit: 100ms , HEX)								0x02		
-	0e00ac	PB dial signal transmission time	PB dial signal transmission time (unit: 5ms, HEX)								0x15		
-	0e00ad	PB dial inter digit pause	PB dial inter digit pause time (unit: 5ms, HEX)								0x11		
-	0e00ae	10pps pulse dial break rate	10pps pulse dial break rate (%, HEX)								0x44		
-	0e00af	10pps pulse dial start time	10pps pulse dial start time (unit: 10ms, HEX)								0x0a		
-	0e00b0	10pps pulse dial blocking time	10pps pulse dial blocking time (unit: 10ms, HEX)								0x0a		
-	0e00b1	10pps pulse dial inter digit pause	10pps pulse dial inter digit pause (unit: 10ms, HEX)								0x50		
-	0e00b2	20pps pulse dial break rate	20pps pulse dial break rate (%, HEX)								0x44		
-	0e00b3	20pps pulse dial start time	20pps pulse dial start time (unit: 10ms, HEX)								0x0a		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	0e00b4	20pps pulse dial blocking time	20pps pulse dial blocking time (unit: 10ms, HEX)								0x0a		
-	0e00b5	20pps pulse dial inter digit pause	20pps pulse dial inter digit pause (unit: 10ms, HEX)								0x41		
-	0e00b6	Flash dial relay ON time	Flash dial relay ON time (unit: 10ms, HEX)								0x1e		
-	0e00b7	Grounding dial relay ON time	Grounding dial relay ON time (unit: 10ms, HEX)								0x1e		
Key operator-Special setting	0e00b8	PB signal transmission level	PB signal transmission level (unit: 1dBm, HEX)								0x08		
Key operator-Special setting	0e00b9	PB signal level difference (HL)	PB signal level difference (HL) (unit: 0.5dBm, HEX)								0x04		
-	0e00ba	DcLoop integration time when CML is set to OFF	DcLoop integration time when CML is set to OFF (unit: 5ms, HEX)								0x28		
-	0e00bb	DcLoop integration time when CML is set to ON	DcLoop integration time when CML is set to ON (unit: 5ms, HEX)								0x10		
Key operator (0 to 3)	0e00bc	PBX connection mode			No. of external access digits at PBX connection mode 00: Designate by using P 01: One digit fixing		PBX dialing 0 to 9: key pad B: # dialing, C: *dialing, D: grounding dialing, E: Flash dialing, F: PBX is not connected.				0x0f		
-	0e00bd	Line release guarantee time									0x00		
Key operator-Special setting (0 to 2)	0e00be	Pause time						Pause time (unit: second, HEX)			0x01		
Key operator (0 to 6)	0e00bf	Monitor speaker	PB tone monitor at off-hook	Monitor speaker during communication 00: OFF 01: 10: 11: On		Speaker volume (HEX) (01F)					0x0C		
Key operator-Special setting (6 and 7)	0e00c0	DCLOOP check mode	DCLOOP check 00: No 10: Always								0x00		
-	0e00c1	DCLOOP waiting time	DCLOOP waiting time (unit: 100ms, HEX)								0x00		
-	0e00c2	DCLOOP instantaneous shutdown allowed time (ph. A)	DCLOOP instantaneous shutdown allowed time (unit: 10ms, HEX) (when calling, from CMLON to dialing completion)								0x00		
-	0e00c3	DCLOOP instantaneous shutdown allowed time (ph. B)	DCLOOP instantaneous shutdown allowed time (unit: 10ms, HEX) (when calling, after dialing When called, after CML ON.)								0x00		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
Key operator (0 and 1) Key operator-Special setting (4 and 5)	0e00c4	Dial mode RING DET mode			RING detection mode 01: No. 10: time				Dial method 00: PB 01: 10pps 10: 20pps		0x12		
-	0e00c5	1st / 2nd DT detection parameter					2nd DT is detected only when DP dial			1st DT2 type	0x00		
-	0e00c6	Reception Att when dial tone is detected									0x00		
Key operator-Special setting (4 and 5)	0e00c7	Tone detection			1300Hz 0: No 1: Yes	Busy tone 0: No 1: Yes	PBX DT 0: No 1: Yes	3rd Dt 0: No 1: Yes	2nd DT 0: No 1: Yes	1st DT 0: No 1: Yes	0x30		
Key operator-Special setting	0e00c8	No. of busy tone detection	No. of busy tone detection (HEX)								0x02		
Key operator	0e00c9	No. of RING detection	No. of RING detection (no., HEX)								0x02		
Key operator-Special setting	0e00ca	RING detection time	RING detection time (second, HEX)								0x06		
Key operator-Special setting	0e00cb	Time to wait for a response from a remote station	Time to wait for a response from a remote station at calling (unit: second, HEX)								0x37		
-	0e00cc	CALLER ID signal detection function									0x00		
-	0e00cd	Dial-in service									0x00		
-	0e00ce	Dial-in terminal selection No. [0]									0x00		
-	0e00cf	Dial-in terminal selection No. [1]									0x00		
Key operator (4)	0e00d0	Answering machine function	CNG detection time when the answering machine is used (unit: 10sec., HEX) (17)			Answer mode 0: OFF 1: ON	DCLOOP detection time when the answering machine is used (unit: 5 sec, HEX) (115)				0x64		
-	0e00d1	Protocol				Speaker monitor by OFF HOOK button 1:NO 0:Yes					0x00		
Key operator-Special setting (0)	0e00d2	Watch dog								Watch dog 0: OFF 1: ON	0x01		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
Key operator-Special setting	0e00d3	Symbol rate selection criteria	Attenuation distortion characteristic (-6dB to +6dB) 0:-6 1:-5 2:-4 3:-3 4:-2 5:-1 6:0 7:+1 8:+2 9:+3 A:+4 B:+5 C:+6				Bandwidth(-6dB to +6dB) 0:-6 1:-5 2:-4 3:-3 4:-2 5:-1 6:0 7:+1 8:+2 9:+3 A:+4 B:+5 C:+6				0x66		
Key operator-Special setting (0 to 3)	0e00d4	Primary channel data rate selection criteria	0000 fix				Primary channel data rate selection criteria(-8dB to +7dB) 0:-8 1:-7 2:-6 3:-5 4:-4 5:-3 6:-2 7:-1 8:0 9:+1 A:+2 B:+3 C:+4 D:+5 E:+6 F:+7				0x08		
Key operator-Special setting	0e00d5	Start speed for international mode (V.34)	33600bps /V.34	31200bps /V.34	28800bps /V.34	26400bps /V.34	24000bps /V.34	21600bps /V.34	19200bps /V.34	16800bps /V.34	0x20		
-	0e00d6	V34 primary channel fallback	No. of frame errors for fallback (Hex)								0x03		
-	0e00d7	V34 control channel fallback	EQMVAL value for fallback (Hex)								0x40		
Key operator-Special setting	0e00d8	T2 timer after CFR	T2 timer value after CFR ×100ms (hex)								0x3c		
Key operator-Special setting	0e00d9	T2 timer after EOM	T2 timer value after EOM ×100ms (hex)								0x37		
Key operator-Special setting	0e00da	JM waiting timer	JM waiting timer value ×100ms (hex)								0x5A		
Key operator-Special setting	0e00db to 0e00e6	Dial-in additional no. (FAX)	ASCII 11 digits + NULL								All 0		
Key operator-Special setting	0e00e7 to 0e00f2	Dial-in additional no. (PCFAX)	ASCII 11 digits + NULL								All 0		
Key operator-Special setting	0e00f3 to 0e00fe	Dial-in additional no. (TEL)	ASCII 11 digits + NULL								All 0		
Key operator-Special setting	0e00ff to 0e0100	Remote reception password	ASCII [2]								All 0x20		
Key operator (0 to 4)	0e0101	(Inhibit) of reception function				Forced mem. Rx 0:Enable 1:Disable	Caller ID 0:Enable 1:Disable	Closed Rx 0:Enable 1:Disable	Remote Rx 0:Enable 1:Disable	Dial-in 0:Enable 1:Disable	0x1f		
Key operator (0 to 3)	0e0102	(Inhibit) of communication function					Instant Batch 0:Enable 1:Disable	Restored Tx. 0:Enable 1:Disable	Relay 0:Enable 1:Disable	Confiden-tial 0:Enable 1:Disable	0x04		
Key operator 25	0e0103 to 0e012a	Character ID (40)	ASCII [40] When ID is less than 40 digits, justify to the left and insert space at the top. (no NULL terminators)								All 0x20		
Serial No. 25	0e012b	Destination Note:Function parameter is initialized by this specification. Default data is in ROM.	0: US 1: Canada 2: Japan 3: Australia 4: New Zealand 5: Europe 6: Germany 7: UK 8: France 9: Switzerland 10: Netherlands 11: Belgium 12: Austria 13: Norway 14: Sweden 15: Finland 16: Ireland 17: Denmark 18: Italy 19: Spain 20: Portugal 21: Poland 22: South Africa 23: Taiwan 24: Saudi Arabia 25: China 26: Malaysia 27: Singapore								0x02		

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
	0e012c	Function when DIS signal is created								When there is V8 ability, V8 ability bit of DIS of V21 0: V8 bit ON 1: V8 bit OFF	0x01	0x01	0x01
- -	0e012d	Signal check at the time of F code communication								PWD / SID reception signal check in F code communica-tion 0: No signal check 1: Signal check	0x00	0x00	0x00
-	0e012e	No. of CI signal transmission in manual transmission	No. of CI signal repeated transmission when ANSam is not received after CI transmission (no., HEX)								0x03	0x03	0x03
-	0e012f	RBT transmission time	Ring BackTone signal transmission time (unit: 1000ms, HEX)								0x14	0x00	0x00
-	0e0130	CAR signal ON time max. value	CAR ON time max. value (unit: 20ms, HEX)								0x28	0x00	0x00
-	0e0131	CAR signal ON time min. value	CAR ON time min. value (unit: 20ms, HEX)								0x0a	0x00	0x00
-	0e0132	CAR signal OFF time max. value	CAR OFF time max. value (unit: 20ms, HEX)								0x28	0x00	0x00
-	0e0133	CAR signal OFF time min. value	CAR OFF time min. value (unit: 20ms, HEX)								0x0a	0x00	0x00
-	0e0134										0x01	0x00	0x00
-	0e0135	Caller ID signal waiting time	ID waiting time after primary response of Caller ID / Dial-in (unit: 1000ms, HEX)								0x05	0x00	0x00
-	0e0136	Remote reception password entry waiting time	Password signal (DTMF) detection waiting time (unit: 100ms, HEX)								0x14	0x14	0x14
-	0e0137										0x01	0x01	0x00

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	0e0138	DRDS mode 1								FKRDS function when the main power is turned on 0: OFF 1: ON	0x01	0x01	0x01
	0e0139 to 0e013f										All 0x00	All 0x00	All 0x00
-	0e0140	Signal transmission level setting upper limits	(dBm)								0x0a	0x0a	0x0a
-	0e0141	No. of RINGS setting lower limits	(times)								0x00	0x00	0x00
-	0e0142	No. of RINGS upper limits	(times)								0x0f	0x01	0x0f
-	0e0143	Dial method setting								PB fixing 0: No 1: Yes	0x00	0x00	0x01
-	0e0144	No. of redial Setting range upper limits	(times)								0x07	0x07	0x0e
-	0e0145	Redial interval Setting range lower limits	(times)								0x01	0x01	0x01
-	0e0146	Redial interval Setting range upper limits	(times)								0x0f	0x0f	0x0f
-	0e0147 to 0e01ff	Reserved									All 0x00	All 0x00	All 0x00

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	0f0000	Reception main scan line resolution ability	400dpi	300dpi	200dpi		16pels/mm		8pels/mm		0xaa		
-	0f0001	Reception sub scanning resolution ability	400dpi	300dpi	200dpi	100dpi	15.4l/mm		7.7l/mm	3.85l/mm	0xbb		
-	0f0002	Reception coding method ability			(JPEG)	(JBIG)	MMR	MR	MH	THRU	0x0f		
-	0f0003	Received document width ability			(Legal)	(Letter)	A3	B4	A4	(A5)	0x0e		
-	0f0004	Received document length ability		Unlimited	(Legal)	(Letter)		B4	A4	(A5)	0x46		
-	0f0005	Reception speed ability [0]				V29-96	V29-72		V27-48	V27-24	0x1b		
-	0f0006	Reception speed ability [1]	V17-144	V17-120	V17-96	V17-72	V33-144	V33-120	(TCM-96)	(TCM-72)	0xfc		
-	0f0007	Reception speed ability [2]	V34-192	V34-168	V34-144	V34-120	V34-96	V34-72	V34-48	V34-24	0xff		
-	0f0008	Reception speed ability [3]			V34-336	V34-312	V34-288	V34-264	V34-240	V34-216	0x3f		
-	0f0009	Reception MSLT ability	T3.85 or 200*100dpi In steps of (0 to 40)ms								0x05		
-	0f000a	Reception MSLT ability	T7.7 or 200*200dpi In steps of (0 to 40)ms								0x05		
-	0f000b	Reception MSLT ability	T11.55 or 300*300dpi In steps of (0 to 40)ms								0x05		
-	0f000c	Reception MSLT ability	T15.4 or 400*400dpi In steps of (0 to 40)ms								0x05		
-	0f000d	Reception ECM ability								ECM reception ability 0: OFF 1: ON	0x01		
-	0f000e	Reception protocol ability			FAX-KRDS	V8/V34	DIAG			G3S	0x39		
-	0f000f	Reception option frame ability				(BFT)	(BTM)	SID	(SEP)	SUB	0x07		
-	0f0010 to 0f001f	Reserved									All 0x00		
-	0f0020 to 0f003f	Reserved											

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	100000	Transmission main scan line resolution instruction	400dpi	300dpi	200dpi		16pels/mm		8pels/mm		0x22		
-	100001	Transmission sub scanning resolution instruction	400dpi	300dpi	200dpi	100dpi	15.4l/mm		7.7l/mm	3.85l/mm	0x11		
-	100002	Transmission coding method instruction			(JPEG)	(JBIG)	MMR	MR	MH	THRU	0x0f		
-	100003	Transmission document width instruction			(Legal)	(Letter)	A3	B4	A4	(A5)	0x0e		
-	100004	Transmission document length instruction		Unlimited	(Legal)	(Letter)		B4	A4	(A5)	0x46		
-	100005	Transmission speed ability [0]				V29-96	V29-72		V27-48	V27-24	0x1b		
-	100006	Transmission speed ability [1]	V17-144	V17-120	V17-96	V17-72	V33-144	V33-120	(TCM-96)	(TCM-72)	0xf0		
-	100007	Transmission speed ability [2]	V34-192	V34-168	V34-144	V34-120	V.34-96	V.34-72	V34-48	V34-24	0xff		
-	100008	Transmission speed ability [3]			V34-336	V34-312	V34-288	V34-264	V34-240	V34-216	0x3f		
-	100009	Transmission MSLT ability	T3.85 or 200*100dpi In steps of (0 to 40)ms								0x05		
-	10000a	Transmission MSLT ability	T7.7 or 200*200dpi In steps of (0 to 40)ms								0x05		
-	10000b	Transmission MSLT ability	T11.55 or 300*300dpi In steps of (0 to 40)ms								0x05		
-	10000c	Transmission MSLT ability	T15.4 or 400*400dpi In steps of (0 to 40)ms								0x05		
-	10000d	Transmission ECM instruction							ECM trans-mission frame size 0: 256 1: 64	EMC trans-mission instruction 0: OFF 1: ON	0x01		
-	10000e	Transmission protocol instruction			FAX-KRDS	V8/V34	DIAG			G3S	0x11		
-	10000f	Transmission option frame instruction				(BFT)	(BTM)	SID	(SEP)	SUB	0x00		
-	100010 to 10001f	Transmission									All 0x00		
-	100020 to 10003f	Reserved											

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
	120000	TTI / RTI setting				RTI addition 0: OFF 1: ON	TTI denomin-ator display 0: Sum 1: Individual-ly	Inhibit to display INSIDE of the TTI setting menu 0: No 1: Yes	TTI addition 00: OFF 01: (OFF) 10: INSIDE 11: OUTSIDE		03		
	120001	Report setting 1		Image addition 0: No 1: Yes	Reserved report auto output 0: No 1: Yes	Single station Tx Report 00: No print 01: Only errer 10: Always print 11:		Sequent communi-cation report auto output 0: No 1: Yes			6c		
	120002	Report setting 2	Fax KRDS F-code forward logging 0: No 1: Yes				Journal daily auto output 0: No 1: Yes	Journal 100 communi-cation auto output 0: No 1: Yes	Error trace list auto output 0: No 1: Yes	Trace list auto output 0: No 1: Yes	04		
	120003	Output setting					Printing while the sub power is turned to OFF 0: No 1: Yes	Journal transmiss-ion printing order 0:from old 1:from new		Diag code display 0: No 1: Yes	00		
	120004	Hidden mode									00		
	120005 to 12000f	Reserved area									00		

HOME

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HOME

Konica

SERVICE MANUAL

Model
FK-102

Use with FK-101 Service Manual

APRIL 2002

CSM-FK102

KONICA BUSINESS TECHNOLOGIES, INC.

HOME

HOME

FK-102

SERVICE MANUAL

APRIL 2002

Used on Konica Models
7020/7022/7025/7030/7035/7130

HOME

IMPORTANT NOTICE

Because of the possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Business Technologies strongly recommends that all servicing be performed by Konica-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Business Technologies, Inc., makes no representations or warranties, either expressed or implied, that the information contained in this service manual is complete or accurate. It is understood that the user of this manual must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service manual is intended.

Corporate Publications Department

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SAFETY PRECAUTIONS

Installation Environment

Safety considerations usually are directed toward machine design and the possibility of human error. In addition, the environment in which a machine is operated must not be overlooked as a potential safety hazard.

Most electrical equipment is safe when installed in a normal environment. However, if the environment is different from what most people consider to be normal, it is conceivable that the combination of the machine and the room air could present a hazardous combination. This is because heat (such as from fusing units) and electrical arcs (which can occur inside switches) have the ability to ignite flammable substances, including air.

When installing a machine, check to see if there is anything nearby which suggests that a potential hazard might exist. For example, a laboratory might use organic compounds which, when they evaporate, make the room air volatile. Potentially dangerous conditions might be seen or smelled. *The presence of substances such as cleaners, paint thinners, gasoline, alcohol, solvents, explosives, or similar items should be cause for concern.*

If conditions such as these exist, take appropriate action, such as one of the following suggestions.

- Determine that the environment is controlled (such as through the use of an exhaust hood) so that an offending substance or its fumes cannot reach the machine.
- Remove the offending substance.
- Install the machine in a different location.

The specific remedy will vary from site to site, but the principles remain the same. To avoid the risk of injury or damage, be alert for changes in the environment when performing subsequent service on any machine, and take appropriate action.

Unauthorized Modifications

Konica equipment has gained a reputation for being reliable products. This has been attained by a combination of outstanding design and a knowledgeable service force.

The design of the equipment is extremely important. It is the design process that determines tolerances and *safety margins* for mechanical, electrical, and electronic aspects. It is not reasonable to expect individuals not involved in product engineering to know what effect may be caused by altering any aspect of the machine's design. Such changes have the potential of degrading product performance and reducing safety margins.

For these reasons, *installation of any modification not specifically authorized by Konica Business Machines U.S.A., Inc., is strictly prohibited.*

The following list of prohibited actions is not all-inclusive, but demonstrates the intent of this policy.

- Using an extension cord or any unauthorized power cord adapter.
- Installing any fuse whose rating and physical size differs from that originally installed.
- Using wire, paper clips, solder, etc., to replace or eliminate any fuse (including temperature fuses).
- Removing (except for replacement) any air filter.
- Defeating the operation of relays by any means (such as wedging paper between contacts).
- Causing the machine to operate in a fashion other than as it was designed.
- Making any change which might have a chance of defeating built-in safety features.
- Using any unspecified replacement parts.

General Safety Guidelines

This equipment has been examined in accordance with the laws pertaining to various product safety regulations prior to leaving the manufacturing facility to protect the operators and service personnel from injury. However, as with any operating device, components will break down through the wear-and-tear of everyday use, as will additional safety discrepancies be discovered. For this reason, it is important that the technician periodically performs safety checks on the equipment to maintain optimum reliability and safety.

The following checks, not all-inclusive, should be made during each service call:

CAUTION: Avoid injury. Ensure that the equipment is disconnected from its power source before continuing.

- Look for sharp edges, burrs, and damage on all external covers and copier frame.
- Inspect all cover hinges for wear (loose or broken).
- Inspect cables for wear, frays, or pinched areas.

- Ensure that the power cord insulation is not damaged (no exposed electrical conductors).
- Ensure that the power cord is properly mounted to the frame by cord clamps.
- Check the continuity from the round lug (GND) of the power cord to the frame of the copier -- ensure continuity. An improperly grounded machine can cause an electrically-charged machine frame.

Safeguards During Service Calls

Confirm that all screws, parts, and wiring which are removed during maintenance are installed in their original positions.

- When disconnecting connectors, do not pull the wiring, particularly on AC line wiring and high voltage parts.
- Do not route the power cord where it is likely to be stepped on or crushed.
- Carefully remove all toner and dirt adhering to any electrical units or electrodes.
- After part replacement or repair work, route the wiring in such a way that it does not contact any burrs or sharp edges.
- Do not make any adjustments outside of the specified range.

Applying Isopropyl Alcohol

Care should be exercised when using isopropyl alcohol, due to its flammability. When using alcohol to clean parts, observe the following precautions:

- Remove power from the equipment.
- Use alcohol in small quantities to avoid spillage or puddling. Any spillage should be cleaned up with rags and disposed of properly.
- Be sure that there is adequate ventilation.
- Allow a surface which has been in contact with alcohol to dry for a few minutes to ensure that the alcohol has evaporated completely before applying power or installing covers.

Summary

It is the responsibility of every technician to use professional skills when servicing Konica products. There are no short cuts to high-quality service. Each piece of equipment must be thoroughly inspected with respect to safety considerations as part of every routine service call. The operability of the copier, and more importantly, the safety of those who operate or service the equipment, are directly dependent upon the conscientious effort of each and every technician.

Remember...when performing service calls, use good judgment (have a watchful eye) to identify safety hazards or potential safety hazards that may be present, and correct these problem areas as they are identified -- the safety of those who operate the equipment as well as those who service the copier depend on it!

1

SPECIFICATIONS

HOME

1. Specifications

Note : Only specifications different from FK-101 are shown.

1.1 Product Specifications

(1) Coding Methods

MH/MR/MMR/JBIG (JBIG has been added.)

(2) One-touch Dials/One-touch Keys

40 dials

Page switching style for one-touch key (20 x 2)

1.2 Service-related Specifications

(1) Removal of Self-diagnosis LEDs

Three LEDs to show self-diagnosis result for power on have been removed.

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2

FUNCTION PARAMETERS

HOME

2. Function Parameters

Note : Only function parameters added to FK-101 are shown.

Setting	Address	Item	Contents								Default		
			bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0	Japan	North America	Europe
-	0e0154	JBIG parameters							JBIG optional LO size is used. 0: Not Used 1: Used	JBIG optional LO capacity 0: No 1: Yes	0x01	0x00	0x00
-	0e0155 0e0156 0e0157 0e0158	JBIG LO size	JBIG optional LO size used for compression (Hex, x01 to 0x ffffffff) [0]=HH, [1]=HL, [2]=LH, [3]=LL								0x00 0x00 0x00 0x80	0x00 0x00 0x00 0x00	0x00 0x00 0x00 0x00
-	0e0159	JBIG-off reception								JBIG-off function after JBIG reception error 0: JBIG Off 1: KBIG On	0x00	0x00	0x00
-	0e015a	JBIG-off time after JBIG error reception	Timer for reset JBIG function after JBIG error reception (Hex, minutes) 10 minutes for 0 setting.								0x0a	0x0a	0x0a
-	0e015b - 0e01ff	Reserved area									All 0x00	All 0x00	All 0x00

Supplementary description for new parameters

0e0154

JBIG parameters

In JBIG communication, data is sent in order of coarse resolution to fine resolution. There are two modes ; progressive mode to send data of one page and stripe mode to send data part by part. Facsimile uses stripe mode.

128-line data is sent in stripe mode as standard, but machines with L0 function can change data quantity.

Bit2 : Determines Use or No-use of L0 size of 0e0155 to 0e0158 when decoding data in stripe mode for transmission. Default is No-use.

Bit1 : L0 reception capability. Default is Yes.

0e0155 to 0e0158

JBIG L0 size

L0 function size (number of lines) is shown in 4 bytes.

0e0155 : HH, 0e0156 : HL, 0e0157 : LH, 0e0158 : LL

For example : 512 lines

512 is 0x200, then

0e0155 : HH=0x00

0e0156 : HL=0x00

0e0157 : LH=0x02

0e0158 : LL=0x00

0e0159/0e015a

JBIG reception off

Function to disable JBIG capability for a certain period of time if JBIG reception error happened. More concretely, DIS bit 78 (T.85 function) becomes off.

0e0159/bit0 : JBIG off function after JBIG reception error. Default is off.

0e015a/bit7-0 : JBIG off time. Default is 10 minutes.

3

NCU CIRCUIT DIAGRAMS

HOME

3. NCU Circuit Diagrams

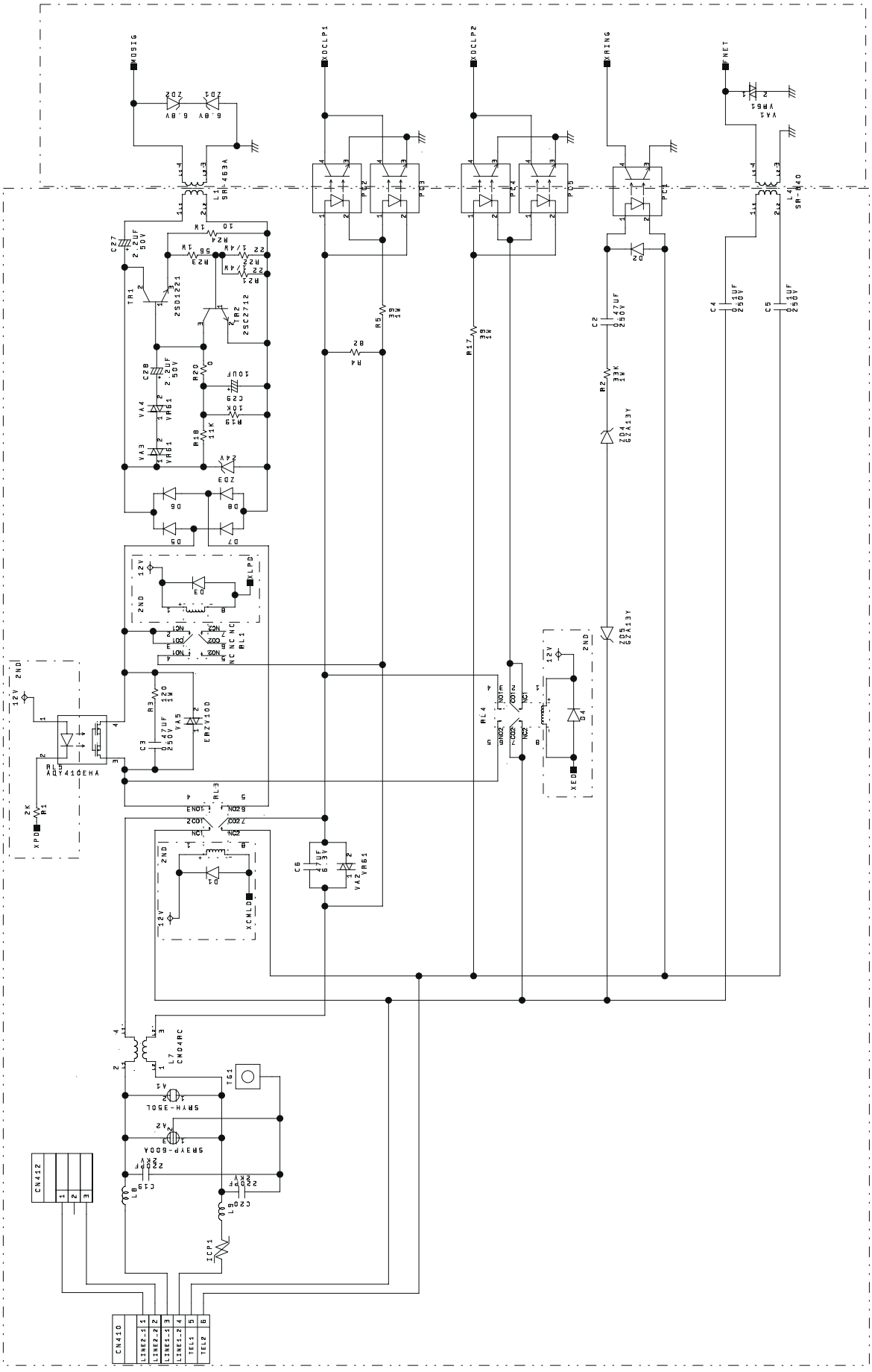
(1) North America, South-East Asia

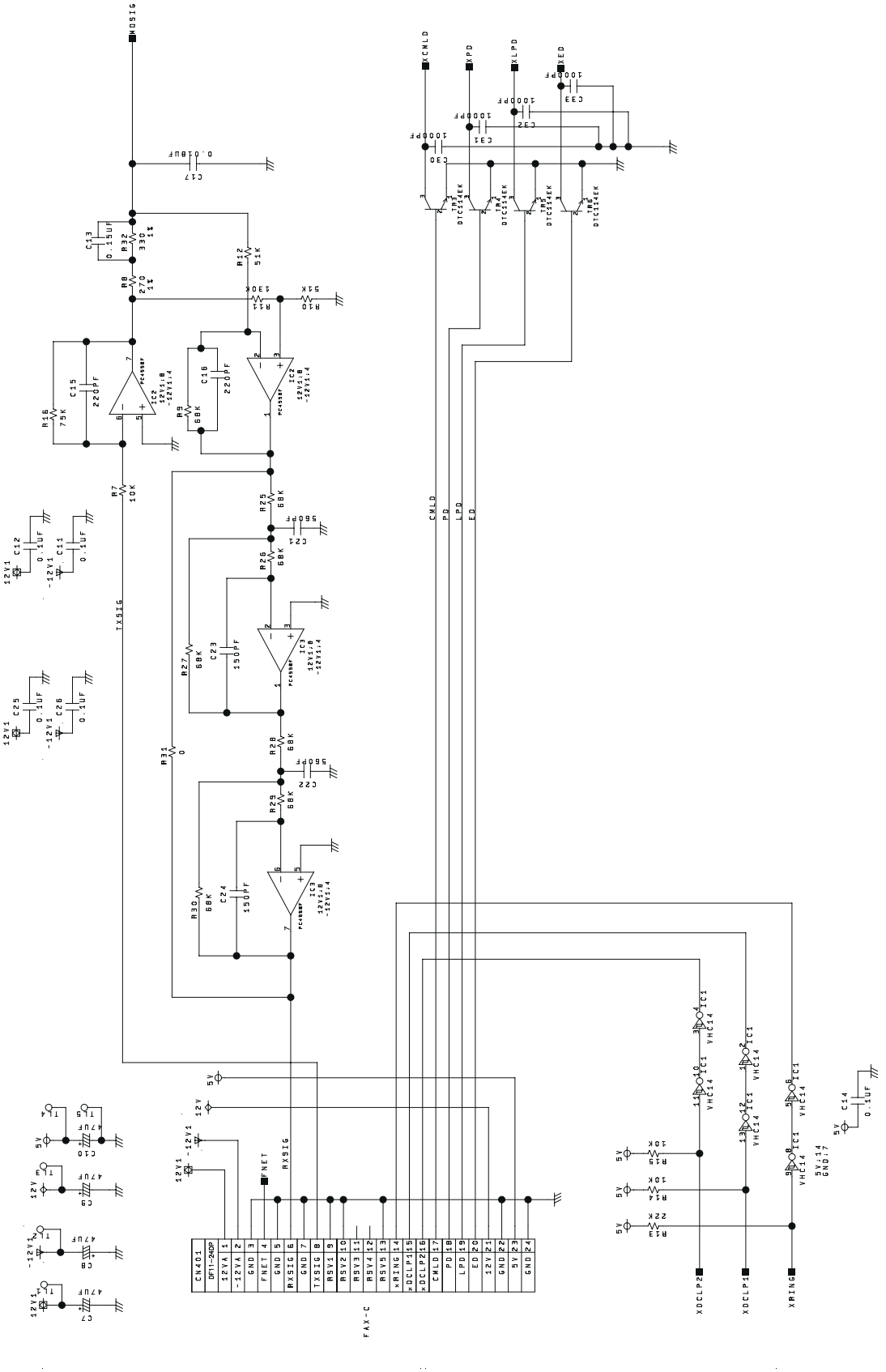
(2) Europe

(3) Korea, Oceania, China, Poland, Malaysia, South Africa, Singapore

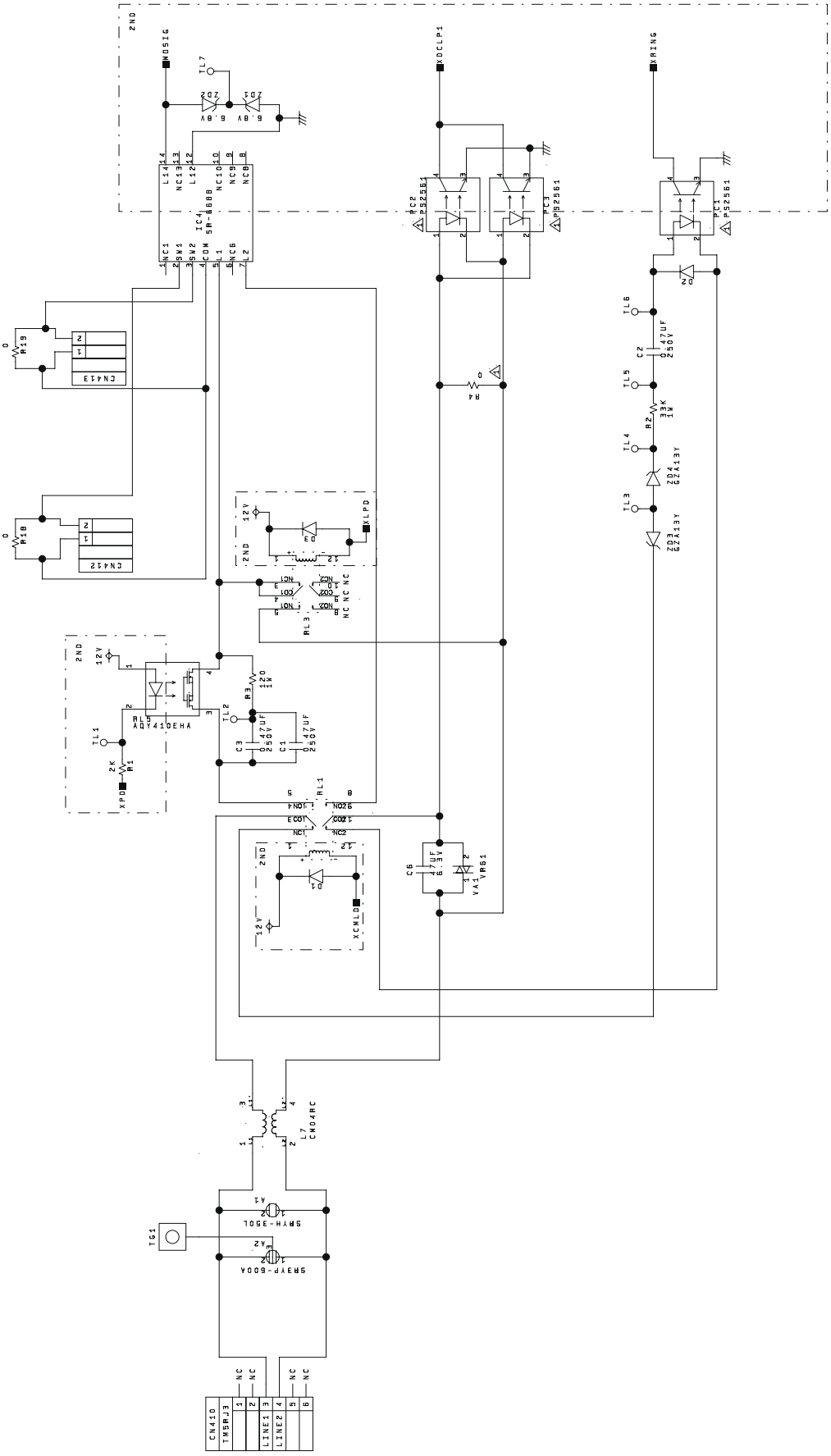
(4) Taiwan

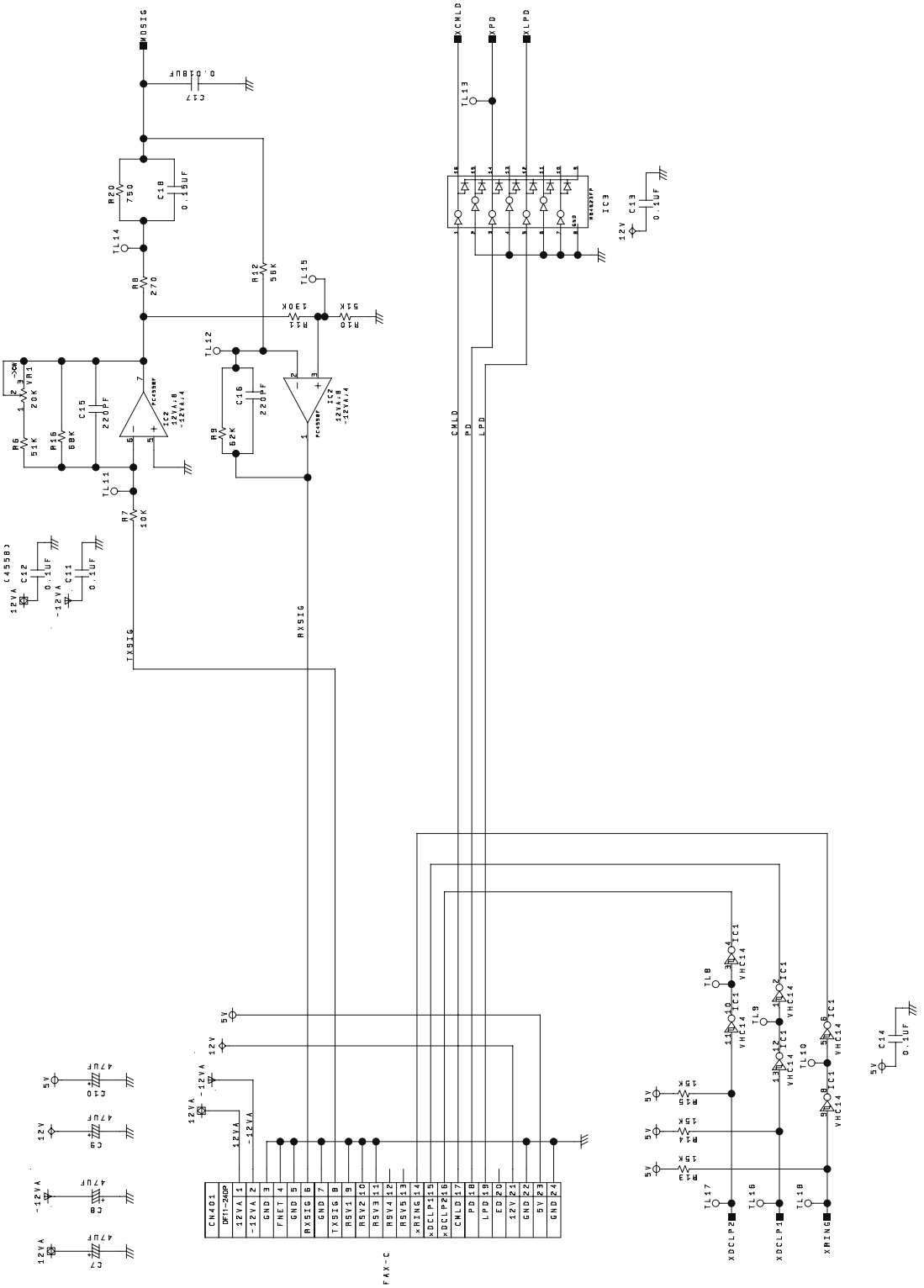
(1) North America, South-East Asia



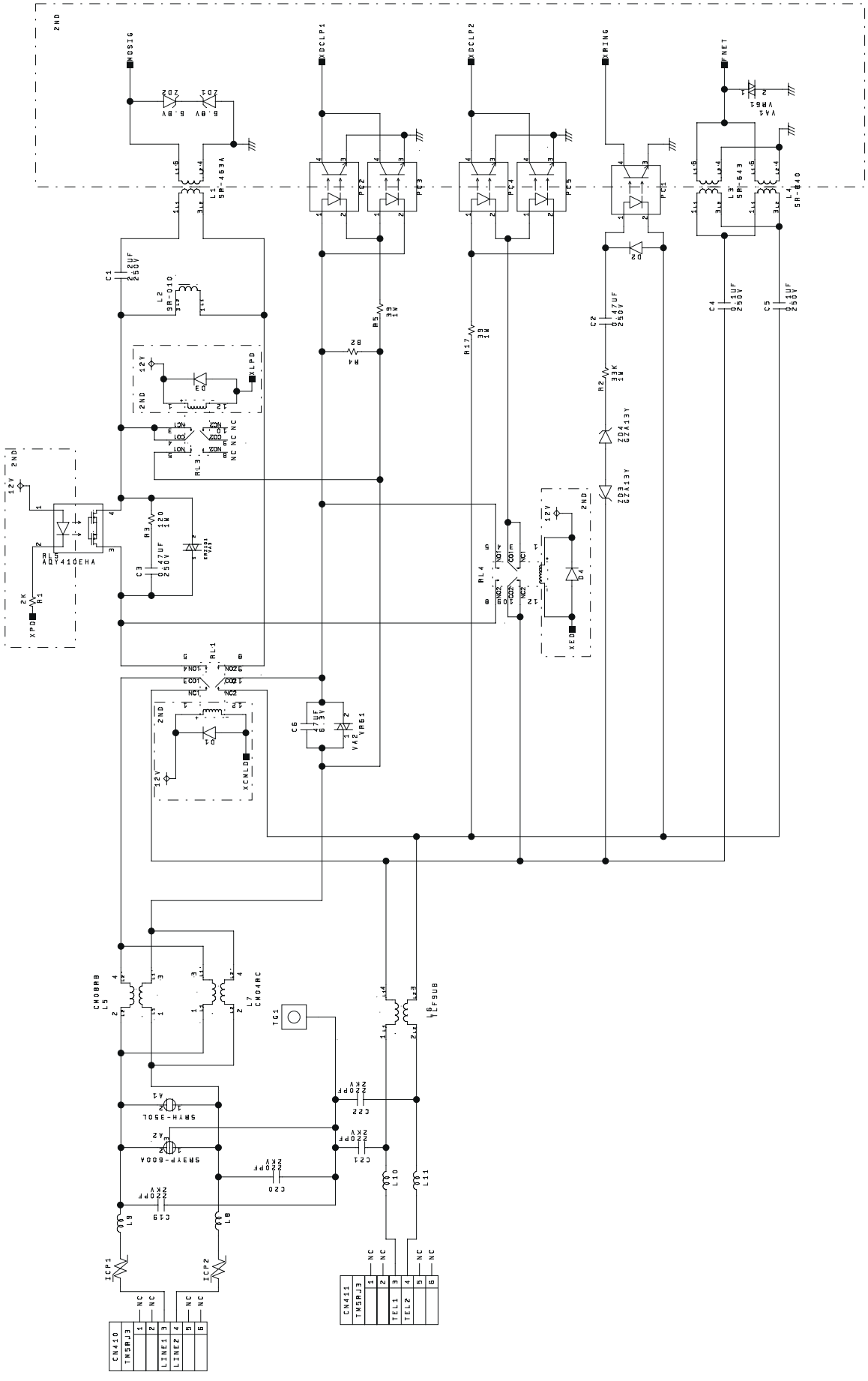


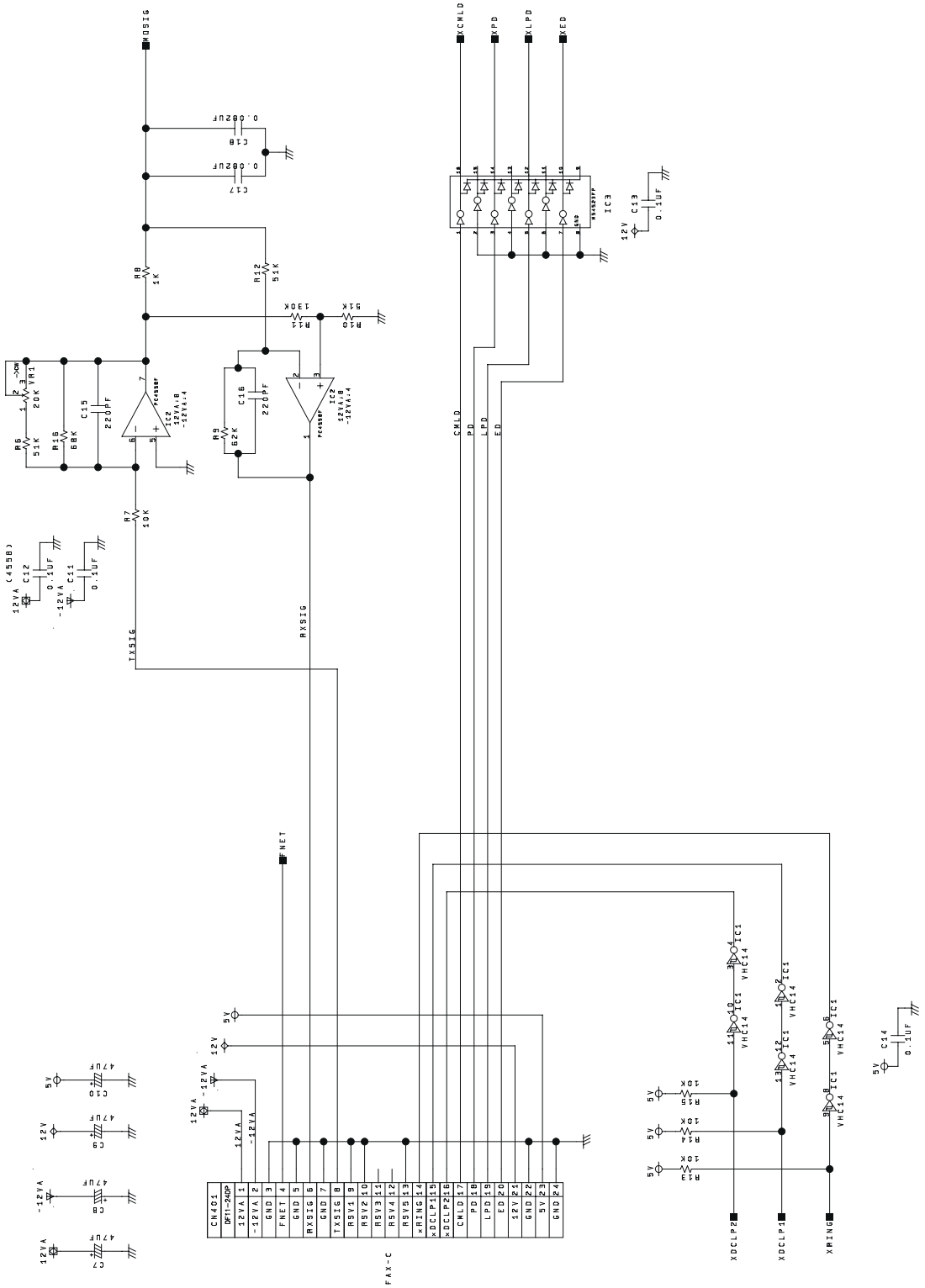
(2) Europe



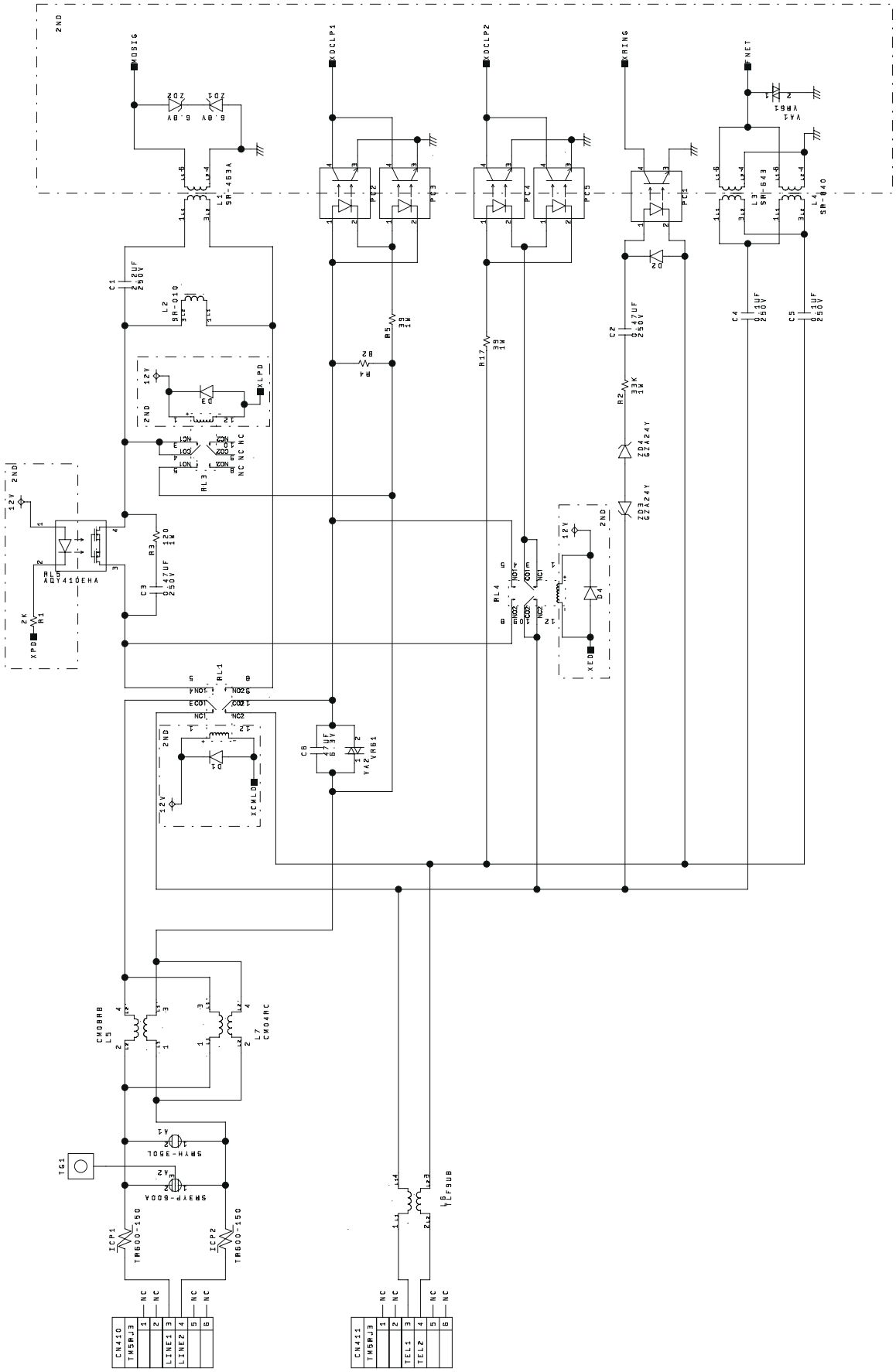


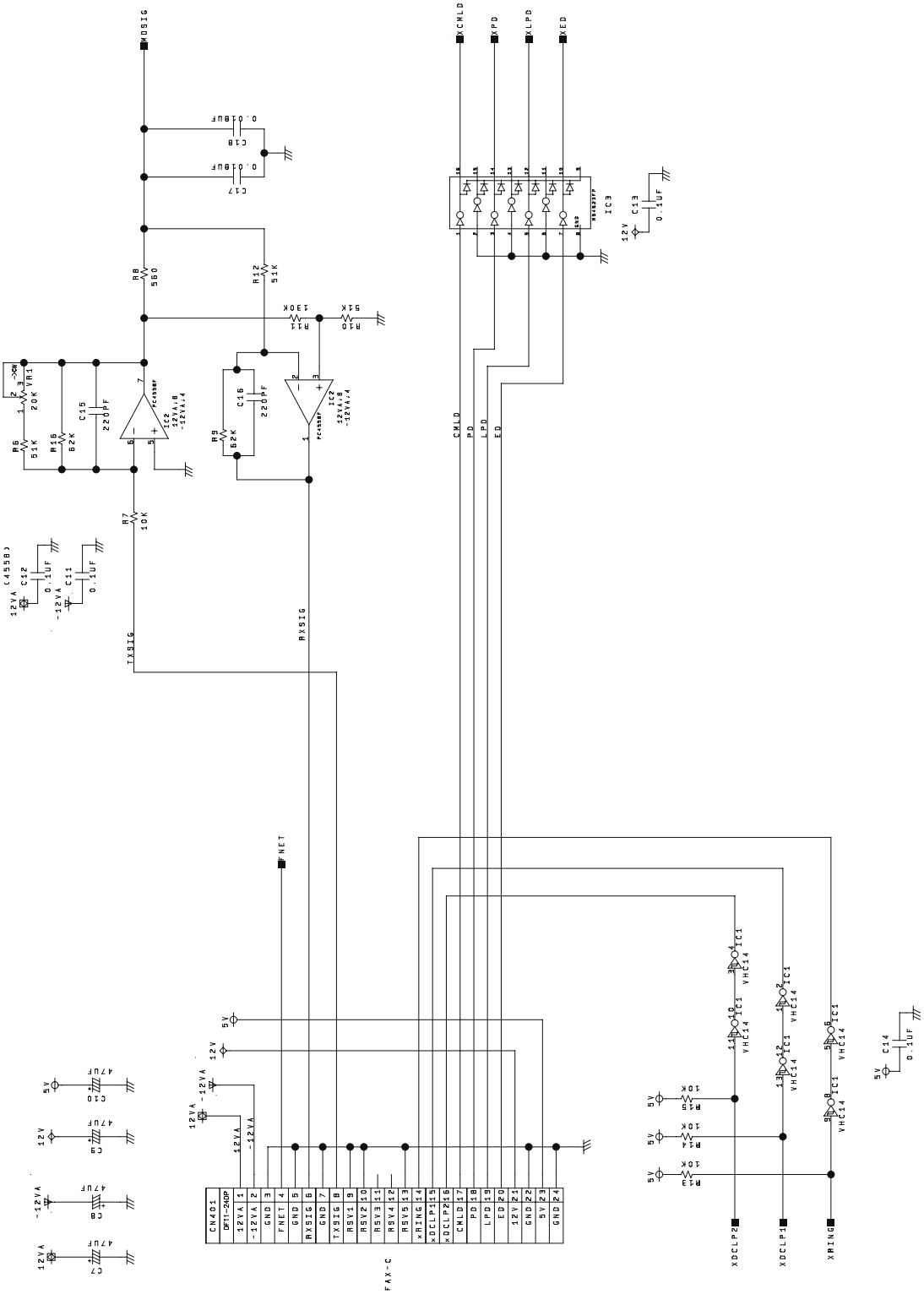
(3) Korea, Oceania, China, Poland, Malaysia, South Africa, Singapore





(4) Taiwan





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HOME

4

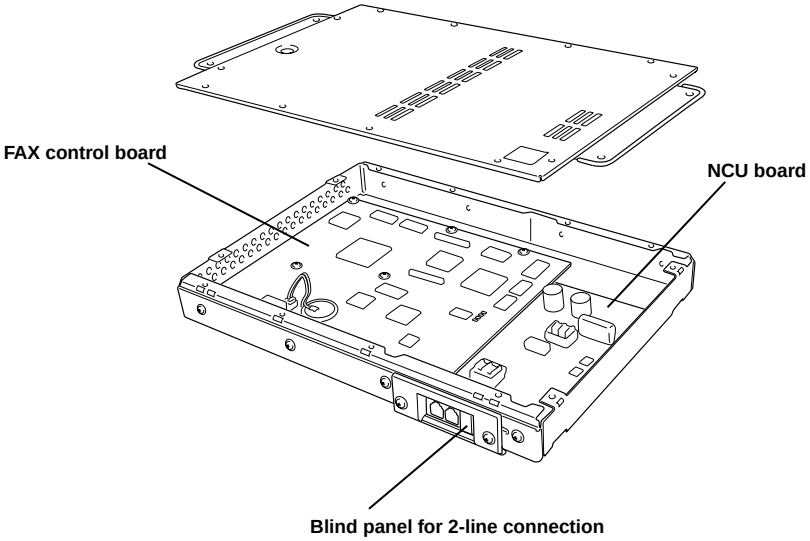
REPLACEMENT PROCEDURES

HOME

4. Replacement Procedures

4.1 FK-102 Body

Procedure is same as FK-101.



4.2 One-touch Program Key

As the number of keys increased from 20 to 40, number of connectors increased to 2 as shown.

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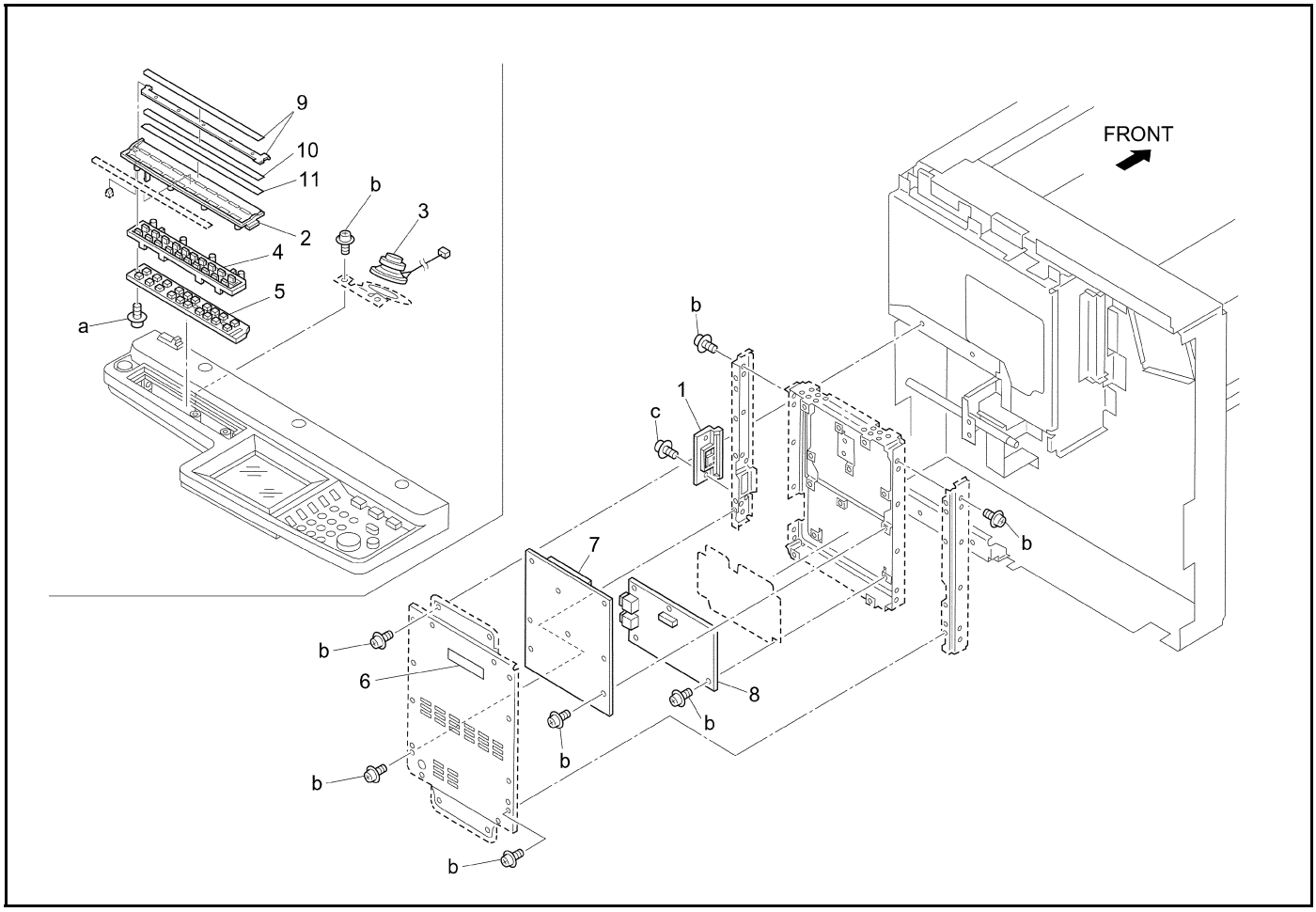
HOME

FK-102 PARTS



Ref. No.	Part No.	Description	Ref No.	Part No.	Description
1	13NV73050	Side cover	8	13UE-9020	NCU board assembly
2	13NV70010	Board mount plate	9	13NV-7010	Open-close cover assembly
3	13FQ82510	Monitor speaker unit	10	13NV70090	Sheet/1
4	13FQ70041	Operation button	11	13NV70120	Sheet/4
5	13NV-9031	Option operating board assembly	a	00Z253081	
6	13FQ73100	Electrify seal	b	00Z193041	
7	13NV-9010	FAX control board unit/1	c	00Z193062	